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ABSTRACT

Presented are 17 activities designed to supplement junior or senior high school studies in prehistory and archaeology. Stressed throughout the manual is the changing relationship between humans and the environment. The learning experiences fall into three categories: (1) how we study prehistoric cultures, (2) how prehistoric peoples lived, and (3) why we value prehistory. Activity plans list the concept and objectives, describe the procedure, provide discussion questions, and present suggestions for related activities and references. Typical among the lessons are "Trash Can Dig," an excavation of a trash can using archaeological materials: "Mammoth Hunt," in which students act out a prehistoric hunt: and "Bandelier," a simulation game that investigates issues in cultural resources management. Also included is an annotated bibliography of resource materials and teacher aids. Several listings relate to the archaeology and prehistoric peoples of Kentucky, Illinois and surrounding states. (WB)

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Curriculum Series, Number 2

ENVIRONMENTAL APPROACHES TO PREHISTORY/ARCHAEOLOGY

Activities designed to supplement
a course in North American prehistory/archaeology
at the junior high or high school level

by

JAMES C. CARPENTER

and

KATHRYN M. FRASER

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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Center for Environmental Education
Murray State University
Murray, Kentucky

September 1980

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CURRICULUM SERIES

The Center for Environmental Education has initiated the Curriculum Series to provide teachers in the west Kentucky region with curriculum material for environmental education. The activities presented in volumes of the Series explore and interpret our environment, encouraging and nurturing the student's awareness of the world we live in. A number of subject areas and grade levels are involved.

Environmental Approaches to Prehistory/Archaeology, the second volume in the Series, presents activities designed to be used in conjunction with a course in archaeology at the junior high or high school level. Authors Jim Carpenter and Kathryn Fraser wrote the activities over a period of several months and tested them in west Kentucky area schools or archaeological workshops. Evident throughout the booklet is a genuine regard for the value of prehistoric study and a concern for the management of our cultural resources. The authors believe that the study of prehistoric man's interaction with the environment, how he adapted it to his own purposes and was in turn altered by it, holds valuable lessons for our twentieth century culture. Perhaps from the history of man/environment relationships, we may learn more about the environmental problems that face us today and the solutions from which we may choose.

The Center for Environmental Education was formed to aid in the development of a citizenry that has a basic understanding of man's relation to and interaction with the environment, realizes the need for environmental concern, and is willing to undertake the responsibility for environmental action. We hope that teachers will not only apply the activities suggested here, but will be stimulated to share our aims and develop instructional procedures of their own. Theirs is the opportunity to motivate students to go beyond awareness and understanding to the point where they will commit themselves to responsible action.

K.M. Fraser
Editor, Curriculum Series

ABOUT THE AUTHORS

Jim Carpenter, a graduate of the Center for Environmental Education, is employed by TVA's Land Between The Lakes as an historical specialist with the Homeplace-1850. He received his M.Ed. in secondary education (specializing in environmental education) from Murray State University in 1978 and an M.A. in anthropology from the University of North Carolina in 1974. As LBL's interpretive archaeologist from 1978-1979, he presented programs to the public and in the schools on LBL's archaeological resources, developed proposals to integrate prehistoric studies into the high school curriculum in west Kentucky, and engaged in archaeological research. He has been involved with several local archaeological projects and aided in the formation of the Jackson Purchase Chapter of the Kentucky Archaeological Association.

Kathryn Fraser currently works as a writer/editor for the Center for Environmental Education. She initiated the concept of the Curriculum Series for the Center in 1978 and worked on the first volume, *Language Arts With an Environmental Twang*, with Miriam Litchfield. Her background includes experience as an editor with the Carolina Population Center in Chapel Hill where she attended graduate school in history. She maintains an active interest in prehistory through the Jackson Purchase Chapter of the Kentucky Archaeological Society and involvement in local archaeological projects.

The authors wish to thank Dr. Ken Carstens, professor of anthropology at Murray State University, for his advice and encouragement throughout all stages of the project; and especially for his extensive critique of the manuscript in its final form.

INTRODUCTION

Prehistory is the study of man, his exploits and his culture, before written records were kept. Archaeology is a method for the discovery, study, and reconstruction of man's past. Historic archaeology, which is gaining in popularity, confirms suppositions we have already made from consulting the literature of the past; prehistoric archaeology provides the only information we have.

"What is past is prologue." Educators agree that what we learn from the past helps us to understand our own times and troubles. But if we turn our backs on prehistory, we are disregarding most of man's experiences on this earth.

Today, concern for our natural environment pervades all areas of inquiry. We believe that the study of how man has treated his environment in the past, how he has shaped it to his own purposes and has in turn been shaped by it, will aid our understanding of our current relationship with the environment and perhaps guide us in our care for it. The activities in *Environmental Approaches to Prehistory/Archaeology* have been written with this in mind.

Although there is no formal internal division within the booklet, the activities fall into three categories.

How we find out about prehistoric man. Activities like "Trash Can Dig," "Artifact Bag Game," and "Pollen Analysis" are based on the way archaeologists operate in the field. Stressed here is the archaeologist's interest in the physical environment which conditioned the culture of prehistoric peoples.

How he lived. "Mammoth Hunt," "Pottery Making," "Sign Language," and the other activities in this section explore prehistoric man's dependence on his immediate physical environment. The teacher should be able to use those few suggested here as models for developing others (with the help of the resources listed in the back of the booklet).

Why we value prehistory. "Why We Study Prehistory" and "Bandelier: A Simulation Game in Cultural Resource Management" probe the student's awareness of the importance of our prehistoric heritage.

Above all, our aim is to create a sense of respect and responsibility for our cultural resources. Evidence of prehistoric occupation of the land abounds in west Kentucky. But all too often these rich but fragile resources are destroyed by unthinking "pothunters" or amateur collectors. We do not want to discourage amateur interest in archaeology, but we want to ensure that future generations are aware of the importance of our prehistoric heritage. We believe that if individuals are taught to

recognize sites of prehistoric occupation and to retrieve properly the information these sites contain, they will be invaluable to the professional as he seeks to learn more about man's past.

We invite your comments and suggestions. Please let us know if these activities work for you and what other approaches you have taken.

Sincerely,

Jim Carpenter
Kathryn Fraser

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THE ACTIVITIES

WHY WE STUDY PREHISTORY

Concept Prehistoric man was neither savage nor ignorant but very like ourselves. Our study of prehistory can help us learn more about ourselves and why we believe and act as we do.

Assignment Students will respond to a series of questions designed to probe their feelings about prehistory and prehistoric man.

Objectives As students reflect upon the questions they will clarify their own attitudes towards human values and human behavior.

Procedure

In its examination of the different forms of being human, the study of prehistory helps us to better understand ourselves. From the evidence archaeologists uncover, we can deduce a great deal about the ways of life in prehistoric society and make inferences about the values held by prehistoric man and the beliefs and attitudes that governed his responses. We discover that prehistoric man was neither savage nor ignorant, but very like ourselves, sharing the same fears and dreams. We learn to regard our own society and our own lives not as the culmination of human effort but as part of a continuum.

Before you begin the study of prehistory with your students, ask them to consider the questions written below. (You may wish to modify these or add to them.) They are to copy the questions down and think about them that evening, perhaps discussing them with friends and their parents. The next day, discuss each question in turn, encouraging everyone to participate.

When you conclude the study of prehistory in class, ask the questions again. If any students have changed their answers or opinions, ask them to explain why.

1. Do you believe these people really existed?

2. How do you feel about handling man-made objects as much as 10,000 years old? Nervous? Excited? Indifferent?

3. What are the basic needs of any society? How do we meet these needs today? How did man meet these needs 10,000 years ago? 1,000 years ago?

4. Could you live the way kids your age did in prehistoric times? Would you like to? Do you think they "dated"? Complained about chores? Listened to music? Fought with their siblings?

5. Do you think prehistoric life was less "complicated" than ours? Why or why not?

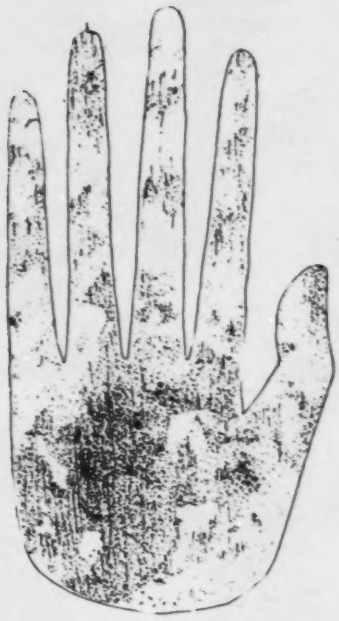
6. How did man treat the environment 10,000 years ago? Has he changed? Why should he?

7. Do you want to take part in an archaeological investigation? If so, why? If not, why not?

8. What does an archaeologist do? How has his role changed in the last few years?

9. Why are archaeologists concerned about the destruction of cultural resources? What can you, as a citizen, do to help?

10. Why do you think we study prehistory?



About two thousand years ago, someone carved a sheet of mica into this hand shape.

PINPOINTING PREHISTORIC SITES

Concept: Evidence of prehistoric occupation of this land is all around us. Only a fraction of the sites discovered have ever been excavated.

Assignment: Students will pinpoint on a county or regional map sites of prehistoric occupation.

Objectives: Students will be more aware of (a) prehistoric settlement in their own area and (b) the contributions amateurs have made to the field of archaeology.

Procedure

Students are to research and record known sites of prehistoric settlement in their own county or region. There are several sources they may wish to consult.

1. The local library may have resource materials.

2. The archaeologist at a nearby university may be able to help, or he may direct you to other sources.

3. Visit people in the area who have collections of artifacts. These *amateur archaeologists* may have some information about local archaeology.

4. Contact the local or state archaeological society. (See the bibliography.)

5. Write the office of the state archaeologist. A Beginner's Guide to Archaeology, by Louis Brennan (Arlington, VA: Popular Archaeology, 1975) lists the names of the state archaeologists and their addresses. The state archaeologist for Kentucky is

   Dr. Berle Clay
   Office of the State Archaeologist
   Department of Anthropology
   University of Kentucky
   Lexington, KY 40506

Pinpoint the location of each site on a county or regional map. Elsewhere record as much information as you can about each site. How large is it? What sorts of artifacts were found there? Has it ever been excavated by archaeologists? Send the map, the list, and comments to the state archaeologist.

Suggestions for discussion

1. Why are these sites located where they are? Are they close to any natural resources prehistoric man may have required? Is the environment surrounding these sites any different now from when they were first inhabitated? What percentage of these sites have been excavated? Why so few?

2. Why were these sites discovered? By whom?

3. What kind of artifacts were found at each site? From what time period do they date? Who has them now?

4. What benefits do the amateur archaeologists offer the professional archaeologists? What drawbacks?

5. Why should these sites be excavated only under the supervision of a professional archaeologist? Why should discovery of any new sites be reported to the nearest professional archaeologist?

Related activities

1. Arrange field trips to an archaeology laboratory or to a nearby prehistoric site. A professional archaeologist should accompany the class to any site.

2. Attend a meeting of the local archaeological society.

SANDBOX DIG

Concept Great care must be taken to preserve the information a prehistoric site contains for our archaeological resources are both exhaustable and nonrenewable.

Assignment Students will participate in a simulation of an archaeological excavation. They will excavate a "site" set up by the teacher in a sandbox, following the steps taken by professional archaeologists in the field.

Objectives After completing the assignment, students will be able to describe one method of field research used by archaeologists. They will understand the necessity for precise and complete records.

Procedure

Explain to the students that there's more to archaeology than hunting for arrowheads:

> "If the collecting of artifacts, the thrill of discovery, and the satisfying of curiosity were the primary objectives of excavation, then the archaeologist would be no better than the 'pot hunter' or vandal who collects for personal gain or private pleasure. The archaeologist digs in order to learn as much as possible about the culture and life style of prehistoric people. The way an excavation is conducted and the completeness with which the evidences of human activity are collected and recorded will be a measure of the archaeologist's high purpose as a student of the past."
>
> Hester, Heizer, and Graham, Field Methods in Archaeology (1975), p. 3

Like many of our natural resources, cultural resources are exhaustable. Moreover, unlike most natural resources, they are nonrenewable. An archaeological site may be excavated just once. If the archaeologist fails to retrieve the information it contains, he can't try again. Hence, excavations must be conducted with great care; records must be precise and complete.

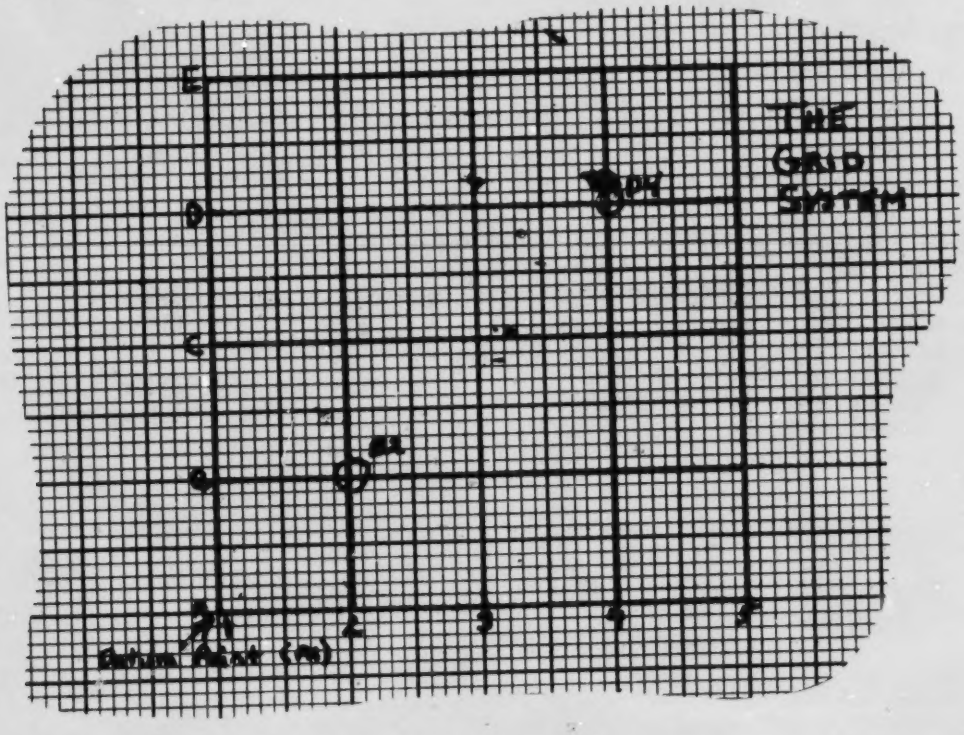
The teacher is advised to review methods of field research thoroughly before attempting this assignment. He is not advised to attempt it at all if he's never participated in a dig. (Field workshops for high school teachers are offered at the Koster site in Illinois. See the bibliography (Section VII: WORKSHOPS AND FIELD SCHOOLS FOR HIGH SCHOOL STUDENTS) for more information.

The sandbox. Before class begins, prepare the sandbox. (This takes time and effort.) A wooden box, one meter square and 25 centimeters deep, is ideal. Fill the box first with a layer of sand, then with a layer of loam, and finally with a layer of dark topsoil. You might want to add tempera paint powder in one or two of the layers so that they are easily distinguishable. Put "artifacts" in the top two layers and on the surface. The bottom layer represents the end of cultural habitation. Make a mound and stock it with artifacts too. What are the artifacts? Use your imagination: how about pieces of charcoal, poker chips, nails, bones from last nights dinner. Don't overdo it--remember, you're just trying to give them the idea.

One way of conducting the excavation follows. Talk about your experiences on actual excavations and connect them to the simulation whenever possible.

Step 1. Describing the undisturbed site.

Delegate one student to describe the site thoroughly in a notebook. This notebook is the "diary" of the excavation. The other students will help him decide what to include. Take a polaroid photograph of the undisturbed site and paste it in the notebook. Now describe the site. Are there artifacts on the surface? Is there a mound? Does the soil on the surface differ in color, texture? Draw a map (see the *grid system*, below) and pinpoint surface artifacts. Sketch any special features. (You might explain that on a real excavation you would note down the plant and animal life, the proximity to a water source, etc..) Make sure the students add to the diary as much as they can; they should describe every step they take, when and how, and describe fully any discoveries.



Step 2. Mapping.

Explain to the students the purpose of the *datum point* (the control point from which all measurements on the site are made) and the *grid system* (the method for recording the location of artifacts and features found within the site). It's easiest to locate the datum point on the lower left hand corner of the box itself; mark it with a colored thumbtack and call it the southwest corner. Grid off the area inside the box using some consistent measurement and mark the intervals with popsicle sticks or large nails driven into the bottom of the box. Connect the nails loosely with string. For example, in a one meter square box, mark intervals of 25 centimeters, ultimately forming sixteen squares or grid units. Decide on some method of labeling the

grid. For example, designate the nails along the north-south axis A-B-C-D-E, those along the east-west axis, 1-2-3-4-5. The grid unit is identified by the nail in the southwest corner. Have the students add a map of the grid system made to scale on graph paper to the diary.

Step 3. Excavating

Assign the students specific responsibilities, e.g., one student removes the dirt, another labels the artifacts, a third takes notes. Explain to them the specific responsiblities undertaken by individuals participating in a professional excavation. Begin on one grid unit, basing the choice upon the density of materials found during the survey of the undisturbed site. Remove the dirt carefully, using plastic spoons for shovels. Begin with *uniform excavation:* this means removing all the dirt to a certain depth (for example, 6 centimeters) within the entire grid. Don't forget to take continuous notes. Describe any changes in the soil. Each artifact must be described (color, shape, texture), measured (how far it is to the west and south walls of the grid unit, how deep it is), and mapped. Leave each artifact *in situ* (in place) until the grid has been excavated to a uniform depth. Then remove the artifacts and put each of them in its own storage container (small plastic bags are fine); with it on a scrap of paper note the site number (#1), the grid unit designation, the depth at which the artifact was found, the initials of the team members (the students participating in the dig), and the date (time).

Students should continue excavating one level at a time until they complete the grid. Then they are to move on to the next grid. They should complete at least three grids?

Suggestions for discussion

1. Talk about the ways the sandbox dig differs from a real dig. What tools would the archaeologist use in the field?

2. Why does the archaeologist keep a record of the depth at which artifacts are found? What do the differences in soil types tell him?

3. Discuss the terms *context* and *association* with the students. Why is it important to note precisely where each artifact is found and what is found with it? Why does the archaeologist leave artifacts *in situ* until the grid has been excavated to a uniform depth?

4. When archaeologists bag artifacts in the field, they write the identifying information on a slip of paper to be included with the artifact in the bag and again on the bag itself. Why?

5. What do we mean when we say natural and cultural resources are exhaustable? What other cultural resources are exhaustable? Are there any in your community? What does the term *cultural resource management* mean? How does this apply to prehistoric sites? (Contact your state historic preservation office for information on local cultural resources. In Kentucky this is the Kentucky Heritage Commission, 104 Bridge Street, Frankfort, KY 40601.)

6. What do students perceive as the *role* of the archaeologist? Do they think he spends all or most of his time in the field, excavating sites? Explain to them that most archaeologists recognize that professional excavation also means site destruction.

Resources

Hester, Thomas R., Heizer, Robert F., and Graham, John A. Field Methods in Archaeology. Palo Alto, CA: Mayfield Publishing Company, 1975. 408 pp.

Robbins, Maurice. The Amateur Archaeologist's Handbook. New York, NY: Thomas Y. Crowell Company, 1973. 288 pp.

TRASH CAN DIG

Concept The archaeologist attempts to discover all he can about prehistoric man and his environment by excavating sites where prehistoric man has lived. Through rigorous analysis of the data (information) he collects, the archaeologist is able to make statements about the culture of ancient peoples.

Assignment Students will "excavate" a trash can, using the methods and techniques archaeologists use to excavate a prehistoric site. They will analyze and interpret their findings much as archaeologists analyze and interpret the findings from an actual site.

Objectives After completing this assignment, students will understand the archaeologist's main activities, i.e., excavating a site, cataloging the finds in a systematic way, and making assumptions based on the data. They will realize that archaeological work involves painstaking effort, systematic and time-consuming procedures, and teamwork.

Procedure

The archaeologist who seeks to understand both the cultural system of ancient peoples and the environment that fostered it leaves no evidence unexamined--even the discarded debris, the garbage, flint chips, bits of broken tools, clam shells, etc. These things are as telling about an ancient culture as MacDonald's hamburger wrappers, pop-can tabs, and worn-out batteries are about our twentieth century culture. For fun, let's excavate a trash can as if it were the site of an ancient civilization.

Divide the class into two groups (or four, if your class is large). Find one full trash can for each group. Look in other classrooms or activity rooms in the school. Don't tell the students which rooms the trash cans are from. Put the two groups in separate rooms or in different corners of the same room.

Excavation. Explain to one of the groups how to excavate the trash can--the procedure used by professional archaeologists. Briefly, they are to excavate in levels, from the top down to the bottom. They must keep accurate and detailed records (drawings and descriptions) of each level. They must be very careful not to distrub the order in which the items appear; if an item slips down in the "site" they should make a note of it and continue. They must record everything--little things are as important as big ones. Tell the other group to excavate the trash can any way they want. Each group is to choose a spokesman to report on the excavation orally after twenty minutes.

When the twenty minutes have elapsed, gather the groups together to listen to the oral reports. Compare the excavation procedures. Which excavation was the most detailed? Did some students take notes, others draw, etc.? Did students record the writing on discarded notepaper? (A summary is acceptable.)

Analysis and interpretation. By examining the data collected at a site, archaeologists hope to discover what people lived at the site and how they lived. Students should be able to discover a great deal about the people who deposited the trash in the trash cans through analysis and interpretation of the data they collected for their excavation reports.

First, categorize the trash by form and function and try to figure out why certain items are found together. How many coke cans are there? How many discarded sheets of notepaper? Any broken or chewed pencils? Are there any unusual objects? Is anything missing you expected to find?

Now answer some questions. What classroom is the trash can from? How do you know? (Is there sawdust from the shop? Poetry written on notepaper from the English class? Food wrappers from a home economics lab?) Do you know the names of any of the students in the class? Can you ascribe personal characteristics to them? (Any revealing love notes? Chewed pencils indicating nervousness?) Who is the teacher? Is he a good teacher? (Do doodles on notepaper indicate students' attentions wandered?) What were the students working on? Was any special activity taking place? (If there are many personal notes, perhaps a study period was scheduled; a large number of chewed pencil tops might mean an exam took place.) Can you tell the order in which activities were conducted in the classroom by the levels of trash (e.g., first crushed notepaper, then discarded art materials, then empty coke cans). When was the trash last emptied? Students will be able to think of many more questions (and the answers!) as they examine the trash. Have them compile written reports on the analysis and interpretation, stating their conclusions and the reasons for them.

Suggestions for discussion

1. Review the archaeologist's main activities--excavation, recording or cataloging the finds in a systematic way, and analysis and interpretation. Ask the students to compare the trash can dig to the excavation of a prehistoric site.

2. Discuss the trash in the trash cans. Would this activity have been possible in school rooms a hundred years ago? Why do we generate so much trash today? How can we cut down on the trash we generate? Why should we? Can some of the trash be recycled? Did prehistoric man recycle his trash? Why?

3. Did prehistoric man have trash cans? (No, but he did have trash heaps. The great shell middens along the coasts of midwestern lakes and rivers are simply giant piles of refuse; archaeologists have learned a great deal about sustenance patterns of prehistoric riverside peoples by excavating them.) What might archaeologists five thousand years from now learn about our twentieth-century civilization from a landfill?

Related activities

Have another trash can dig, but this time have the students pretend they are excavating the site of a vanished civilization. What assumptions can they make about the culture of these ancient peoples from the data they collect? Be creative! Have fun!

INTERPRETING THE PRESENT

Concept One way the archaeologist attempts to describe the culture of ancient peoples is by examining the artifacts recovered from an excavated site.

Assignment Students, playing the roles of archaeologists 10,000 years from now, will regard twentieth century objects as artifacts rescued from a lost civilization and discuss their function.

Objectives After completing this assignment, students will be better able to understand how the archaeologist uses *interpretation* of the "clues" (artifacts) left behind by ancient peoples to recreate their culture. They will begin to appreciate that imagination, creativity, and an open mind are as necessary to the archaeologist's profession as a shovel and a camera.

Procedure

What do the objects with which we surround ourselves reveal about our culture? Archaeologists use the artifacts recovered from ancient sites as the basis for suppositions about the material culture of prehistoric peoples; in turn, these suppositions lead to further suppositions about the ideology of prehistoric cultures, the beliefs, attitudes, and values of prehistoric men. An archaeological analysis of our twentieth century artifacts may lead students to some surprising conclusions.

It's the year 11,980. The students are members of a salvage archaeology team sent to examine and report on the ruins of the lost city of Murray (substitute the name of your own town). The ruins were revealed when the waters of the Great Nebraska Sea receded; the buildings and their contents are just as they were when the inhabitants fled the great flood 10,000 years ago.

Discuss the terms *analysis* and *interpretation*. What does each mean to the archaeologist? What's the difference between them? Ask the students how we would go about analyzing our twentieth century artifacts (e.g., checking shape, color, size, location, relationship to surroundings, texture). Why are *context* and *association* (i.e., where the artifact is found, what is found along with it) so important? How much of a role does common sense play?

Hand one of the students a hammer. Ask him to hold it so that it feels comfortable in his hand. (The only comfortable way to hold a hammer is to hold it poised for use.) Wouldn't it be fairly simple for an archaeologist from the future to deduce that twentieth century man used a hammer for pounding?

Ten thousand years ago prehistoric man used a piece of worked stone for a hammer. Modern archaeologists would identify prehistoric hammers the same way our archaeologist from the future would identify a twentieth century hammer. However, sometimes the process is more difficult. Here's where interpretation, and the archaeologist's imagination, creativity, and open mind play a part.

For example, archaeologists still disagree about the *bannerstone*, an obviously worked fist-sized piece of bone or stone with a narrow hole running lengthwise through it. Was it ornamental? Or was it intended, as an imaginative archaeologist theorized, as a weight for the *atlatl*, or spearthrower? Or perhaps it had some function completely unknown to us.

Interpreting objects. Write the names of half a dozen common household objects on the blackboard, e.g., telephone, curtains, toothbrush, saucepan, flashlight, pencil. (Bring in props if you can!) Ask the students what an individual living 10,000 years from now might think of each object. A response may be whimsical or serious, providing the student is able to substantiate it. For example, curtains are solar collectors: they're consistently found near apertures (windows) which attract light. A flashlight, because of its easily-directed heat-bearing ray, is a cure for warts!

Interpreting buildings. Would archaeologists 10,000 years from now view our churches as buildings intended for the worship of a god or gods? (Perhaps they would: man has always associated his gods with the heavens, and the architecture of churches tends to point skyward.) Would they realize that a restaurant was meant for feeding many people? Why? What would they think of schools? Of gas stations? Perhaps they'd view gas stations as medical centers. What characteristics might be ascribed to twentieth century man because of our single family dwellings? Ask the students how they, acting as archaeologists from the future, would interpret each of the following: fire station, library, jail, hospital, cemetery, tennis court, telephone booth, hardware store, grocery store, gymnasium.

Resources

Carson, Howard and Macaulay, David. "Motel of the Mysteries." IN Human Nature, March 1979. *"A chance discovery led to the excavation of this 2000 year old North American religious center and gave us a look at the ancient 20th century.*

The bannerstone

POLLEN ANALYSIS

Concept The natural environment of any group conditions its cultural environment. Pollen analysis is one method archaeologists use to reconstruct the natural environment of ancient peoples.

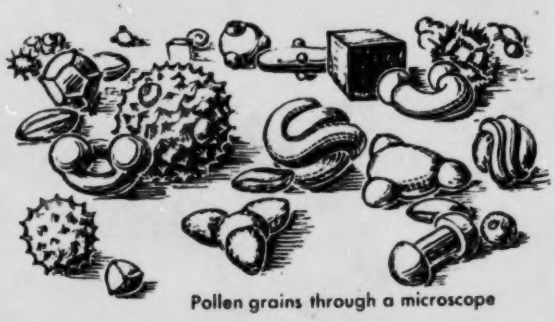
Assignment Students will collect and label examples of flora from their schoolyard and discuss the importance of flora in archaeological analysis and interpretation.

Objectives Students will understand how archaeologists can learn about cultural behavior from the natural environment.

Procedure

Ask the students to collect examples of the flora in the schoolyard. Make each student responsible for three different varieties of plantlife. They should identify their samples, using standard field guide books, and research general information about habitat and preferred weather conditions. Then take the students to the biology laboratory to view grains of pollen from their samples under a microscope. (Perhaps the biology teacher would be willing to make this a joint activity with his class.)

Discuss pollen with the students. What is it? Why and under what conditions does it last indefinitely? Why is it so useful to the archaeologist? How does the archaeologist obtain samples of prehistoric pollen?



Pollen grains through a microscope

Have the students preserve their plants by pressing them between sheets of newspaper inserted in heavy books; a week later, remove them and label them with the species name, habitat, and preferred weather conditions. Display all the flora attractively on a bulletin board or in a scrapbook. Explain to the students that archaeologists studying ancient man in North America will make collections of modern flora in order to compare them to flora existing in prehistoric times.

Suggestions for discussion

1. What assumptions could an archaeologist make about the culture of ancient peoples by studying their natural environment? Could he tell what they ate and what they lived in? Could he tell when "agriculture" began? What sorts of changes in the natural environment would prove human habitation?

2. What would an archaeologist from the future deduce about modern-day culture if he found grains of pollen from the plants the students collected? What could he tell about the climate? The way we live?

3. Try to obtain an aerial photograph or a drawing of the schoolyard area before the school was built. What changes do the students note? Why did they occur? Have the students collect plantlife from an uncultivated area near the school. How does the plantlife differ from the specimens found in the schoolyard? Do the students think this "untouched" area is in the same condition it was before the town was built? Why or why not?

4. The environment affects man's culture, but man can also alter his environment--sometimes drastically. For example, Stuart Streuver, in Koster: Americans In Search of Their Prehistoric Past (New York, NY: New American Library, 1980), notes that the bison did not appear in Illinois until 1500, perhaps because human groups burned off areas of the forest, returning them to prairies, which was the bison's natural habitat (p. 127). What drastic examples of man's altering his natural environment can you name? Often manmade changes in the landscape endanger the existence of wild creatures. Name some instances of this. Why should we care?

TREE RING DATING

Concept: To fix dates on artifacts or prehistoric sites, archaeologists may resort to "time-clocks" found in nature.

Assignment: Students will examine the growth rings on a cross-section of a tree trunk. They will determine the years represented by the rings and label them accordingly.

Objectives: After completing this assignment, students will be able to explain how archaeologists can date sites using *dendrochronology*.

Procedure

Obtain a cross-section of the trunk of a tree felled in the current year. The tree should be at least twenty years old. (Check with your industrial arts teacher.)

Each student makes a rubbing of the rings on white paper with a crayon or pencil. Counting each ring as one year, and the outer layer as the current year, he labels significant events in his own life, e.g., the year he was born, when he started school or took a memorable trip, the dates of political or cultural events important to him.

Mount the section of the tree on edge, and on it label important events in the school's history (e.g., the year of a sports championship, the year a favorite teacher was hired). If your school has an outdoor environmental education center, you may wish to place it permanently on display there. Coat it with laquer or clear acryllic to preserve it for outdoor use.

Cross-dating. Although tree-ring dating is very simple in principle, in practice it's frustrating and confusing. No tree grows at exactly the same pace as its neighbor, and *cross-dating* or overlapping involves innumerable diagrams and painstaking calculations. After the stduents have read about the process, let them try a simple comparison of the growth rings from two different trees both felled in the current year.

Suggestions for discussion

1. What other dating methods do archaeologists use? Can any other method of dating fix the exact year?

2. What do you think accounts for the differences in the width of the tree's annual growth rings? Why has the tree been called "a living diary of the weather"? The tree-ring dating method was discovered through research on sunspots: what is the correlation?

3. What are the drawbacks to tree-ring dating? (It's only possible in certain areas of the world with certain kinds of trees; climatic conditions must be right to preserve the wood; every region must develop its own sequence; one error throws off the whole sequence; the reuse of timbers by later cultures may confuse the sequence.)

Resources

Douglass, A.E. "The Secret of the Southwest Solved by Talkative Tree Rings." National Geographic 56:737-770/December 1929.

U.S. Department of Agriculture, Forest Service. America's History is Written in Her Trees. Forest Service Publication No. 78CFFP-23. 1978. *Poster on tree-ring dating.*

ARTIFACT BAG GAME

Concept Analysis of prehistoric artifacts requires disciplined observation skills.

Assignment Students will play a game which develops their observation skills.

Objectives After completing this assignment, students will have a firmer grasp on their own powers of observation. They will understand how the archaeologist uses his senses (especially the sense of touch) to examine and identify artifacts.

Procedure

Fill a bag full of rocks an inch or two in diameter, one for each student in the class. For older students, choose rocks similar in size and shape; for younger students make them different. Pass the bag around the classroom and instruct each student to take one rock. Tell him to imagine that his rock is a prehistoric artifact. What function does he think it served? (Be imaginative!) Would he recognize it if he saw it again? How would an archaeologist classify it?

Each student is to examine his rock carefully, using all of his senses. He may wish to jot down what he observes. How big is the rock? (Measure!) What color is it? Does it have any distinctive marks? Any distinctive depressions or projections in its surface? Is it smooth or grainy or rough? Can you clutch it in your fist? Does it have a smell? A taste?

After five minutes, collect the rocks from the students, put them back in the bag, and stir them up. Now set them out on a table. Invite students up to the table, one by one or a few at a time. Can each student find his own rock? How many are successful?

Try the exercise again, but this time divide the students into groups of five or six. Put the rocks for each group on a separate table; toss in a couple of rocks that don't belong to anyone. Now *blindfold* the students before they try to find their rocks.

Teachers: Don't be wary of this activity, thinking it'll never work. It works well, and students generally have a great time!

Suggestions for discussion

1. How did individual students analyze their rocks? What characteristics did they look for? What characteristic was most helpful when it came to finding the rock? Why was it easier for certain students to find their rocks? Write down the characteristics students suggest on the blackboard and attempt to break them into general areas, e.g., size, color, texture, distinguishing features. Can you and the students come up with a classification system?

2. Why is it important to classify and label artifacts? What would an archaeologist tend to notice about an artifact? What measurements would he take? How would he mark the artifact so that he could keep track of it? How would he store the artifacts? How do collectors display their artifacts?

3. How do you think the sense of touch aids an archaeologist? (The archaeologist may determine the function of a prehistoric tool by attempting to use it the way it might have been used in prehistoric times. For example, in an earlier activity, "Interpreting the Present," we described how the only comfortable way to hold a hammer, prehistoric or modern, is to hold it poised for use. However, make sure students are aware of the pitfalls inherent in the functionalist approach; this is why, in the field, the archaeologist pays close attention to the *context* in which the artifact is found and the objects which are found in *association* with it.)

4. Most of the stone tools recovered by archaeologists are broken. Why? Do you think some of these were broken when they were made? Would prehistoric man make use of a broken projectile point? Do you think projectile points were difficult to make? How long do you think it would take to make one?

Related activities

1. Visit a local museum or archaeological laboratory to view prehistoric projectile points and other stone tools. Ask a professional archaeologist to speak to the class about the kinds of artifacts found at local prehistoric sites.

2. *Artifact analysis.* If you or any of your students have collections of artifacts, spend some time in class analyzing and classifying them. Keep it simple. If a student is interested, he can go further on his own.

   Before you begin, tag the artifacts so that two or more collections don't get mixed up. How about a dab of washable paint? (Explain to the students how professional archaeologists tag their artifacts.) Now organize them by form and function. You don't need reference tools--just observe them carefully and use your common sense. Look at the artifacts; hold them in your hand. Develop your own classification system based on (a) what they are made of, (b) their shape and design, and (c) their possible function. You should be able to separate projectile points, axes and celts, pottery, bone tools, hammerstones,

and flakes. Most of the items in the collections will be projectile points. Subdivide these by shape and size. (On the following page are diagrams illustrating the basic point shapes and hafting area types. However, don't feel restricted to these alone.)

Listed below are a number of reference books for identifying prehistoric artifacts. As students attempt to identify and classify their artifacts using these tools, they should learn some of the typology terminology. Have them make up an identification list. (It's extremely unlikely that they will be able to identify more than twenty percent of the projectile points. Tell them that this is why description and analysis of the artifact (shape, size, color, etc.) is so important.

Resources

Bell, Robert E. Guide to the Identification of Certain American Indian Projectile Points. Special Bulletin Number 1. Norman, OK: Oklahoma Anthropological Society, 1958.

Bell, Robert E. Guide to the Identification of Certain American Indian Projectile Points. Special Bulletin Number 2. Norman, OK: Oklahoma Anthropological Society, 1960.

Cambron, James W. and Hulse, David C. Handbook of Alabama Archaeology. Part I: Point Types. Moundville, AL: Archaeological Research Association of Alabama, Inc., 1975.

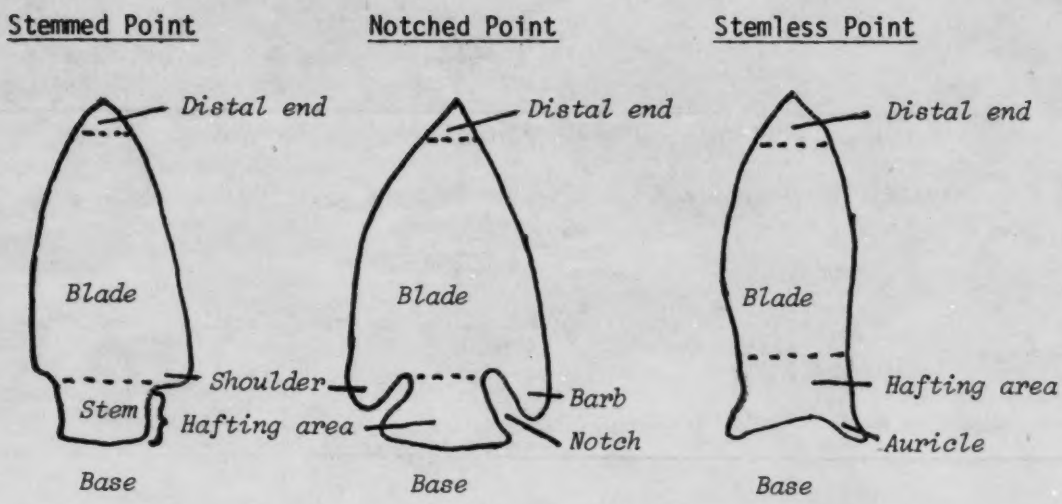
Cambron, James W. and Hulse, David C. Handbook of Alabama Archaeology. Part II: Uniface Blade and Flake Tools. Moundville, AL: Archaeological Research Association of Alabama, Inc., 1973.

Perino, Gregory. Guide to the Identification of Certain American Indian Projectile Points. Special Bulletin Number 3. Norman, OK: Oklahoma Anthropological Society, 1968.

Perino, Gregory. Guide to the Identification of Certain American Indian Projectile Points. Special Bulletin Number 4. Norman, OK: Oklahoma Anthropological Society, 1971.

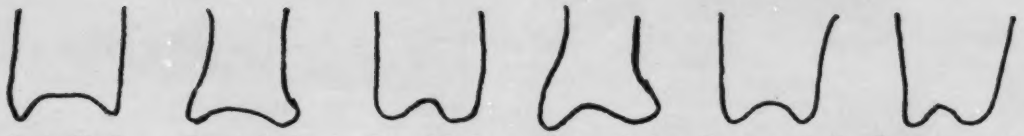
Robbins, Maurice. The Amateur Archaeologist's Handbook. New York, NY: Thomas Y. Crowell Company, 1973.

BASIC POINT SHAPES AND FEATURES

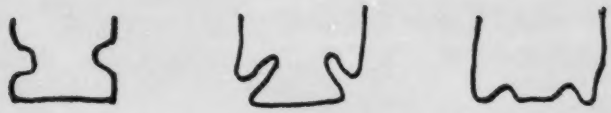


Hafting Area Types

Auriculated Base



Notched Base



After Cambron & Hulse, Handbook of Alabama Archaeology

POTTERY MAKING

Concept: Prehistoric man took from his environment the raw materials he needed to make the tools required for his daily existence.

Assignment: Each student will make a pot using the clay and other natural resources used for manufacture of pottery in prehistoric times. He will follow the procedure archaeologists assume was used by prehistoric potters.

Objectives: After completing this assignment, students will be able to

1. Locate and describe the natural resources used in prehistoric pottery manufacture.
2. Replicate the pottery produced in prehistoric times following prehistoric methods and using natural resources.
3. Explain why prehistoric man made clay pots and describe how he used them.

Procedure

Archaeologists estimate that people first experimented with pottery in the southeast United States 3500 years ago. Style and type of pottery varied from region to region; the appearance of the finished product depended on the raw materials available and the method for combining them. The basic recipe calls for moist clay and some sort of *temper*. Temper is a coarsely ground substance (e.g., shell, bone, limestone) added to the clay to prevent the pot from cracking while it is drying. Step-by-step instructions follow:

Step 1. Collect the clay.

You or a student in your class may know of a deposit of clay near the school. If not, ask other teachers or members of the community. You might ask the naturalist at a nearby state park. The clay found on stream bottoms works well.

Step 2. Prepare the clay.

Keep the clay moist. Remove plant material and rocks and knead it to a uniform consistency. Add the temper (amounts vary) and knead again.

Step 3. Shape the pot.

Most pottery vessels in western Kentucky were made by *coiling*. To make a pot by coiling, take a fistful of clay and shape it into a ball. Flatten the ball, forming a disk. Roll out a long rope or coil of clay, perhaps a half inch in diameter. Attach the end of the coil to the rim of the disk, and wind the coil around the disk in a spiral motion. After you complete one circle, stack the second circle atop the first. Take care to avoid air bubbles as you attach new coils. Smooth them in place using a stick or the tips of your fingers. Keep adding new coils and smoothing them together until the pot is as big as you want it to be.

Step 4. Decorate the pot.

Let the pot dry for several hours and then smooth the surface by scraping and burnishing. The clay should still be pliable enough to add various surface decorations. You may want to draw designs with a small twig or make *textile impressions* by pressing pieces of woven fabric into the surface of the clay and then removing them. Both of these techniques were used by potters in prehistoric times.

Step 5. Dry the pot.

Let the pot rest, undisturbed, out of direct sunlight for at least twenty-four hours, preferably longer.

Step 6. Fire the pot.

Dig a pit one meter square and 35 centimeters deep outdoors and build a fire in it. Warm the pots slowly by placing them close to the fire. When the fire burns down to coals, put the pots in the pit and cover them with the coals. Build another fire atop the coals, and after an hour, let the fire die out. When you can do so with your fingers, it's time to remove the pots.

Step 7. Experiment!

Try different kinds of clay and different kinds of temper. Experiment with the proportion of clay to temper. Add a coloring agent if you wish. (Try the juice from crushed berries.) Instead of coiling the pots, try *pinching* or *molding*. Keep accurate records so you'll know what to try next. Try cooking something in your pots. Do they hold up?

Suggestions for discussion

1. What problems did you have with the pots? Did one recipe work best or did different students get similar results using different combinations of materials? Do you think prehistoric man always made successful pots?

2. What did prehistoric man use the pots for? What else did they use for the same purposes? What did they use before they learned to make pottery?

3. What other things did prehistoric man make with clay (marbles, effigies, pipes, jewelry)?

4. What were the advantages/disadvantages of making and using this type of pottery in prehistoric times? Is there enough clay available today so that all of us could make our own pots? Would you want to? Why or why not?

5. Do people still make pots this way? What sorts of changes has the manufacture of pottery undergone in 3500 years?

6. Why is pottery so important to the archaeologist? (When it's fired it becomes a virtually indestructable artifact carrying tremendous information about the technology and hence the culture of prehistoric sociietes. Also, it permits identification of the transference of ideas between difference cultural groups.)

Related activities

1. Replicate other items people would have made from clay in prehistoric times (e.g., marbles, effigies, pipes, jewelry).

2. Exhibit the pots (and other items) in a display case. Ask a local potter to judge which pots are best. Award "prehistoric prizes," e.g., a handful of flint, a chunk of "dynamite clay."

3. Visit a nearby museum or archaeological laboratory to view pottery recovered from ancient dwelling areas. Compare these with the pots students made.

4. Visit a ceramics laboratory. Note the way modern-day pottery is formed and fired. Compare the recipe used by the modern-day potters with yours. What does the modern-day potter use as a coloring agent? What did the prehistoric potter use? Is there any similarity in techniques of surface decoration.

Resources

The directions for making pottery are taken largely from Victor P. Hood and George F. Fielder, "Imitating Tennessee's First Potters," The Tennessee Conservationist 44(6):17-19/November-December 1978.

MAMMOTH HUNT

Concept Prehistoric man developed strategies to deal with specific characteristics of his environment effectively. *Also:* Today we know that man is responsible for the extinction of certain species of animals; thousands of years ago he may have been responsible for the extinction of the mammoth.

Assignment Students will act out a prehistoric hunt, some students playing the roles of prehistoric hunters armed only with spears and rocks and one student playing the part of the enormous, dangerous mammoth.

Objectives After completing this assignment, students will be able to suggest ways in which prehistoric man successfully hunted large animals and explain how man may have contributed to the extinction of the mammoth.

Procedure

Ask one student to play the role of the mammoth and five or six others to play the roles of the Paleo-Indian hunters who lived in the southeast United States ten thousand years ago. The hunters must remember that the mammoth is enormous, a great hairy beast with huge curving tusks, dangerous at any time but especially so when provoked. How is man, a relatively weak and defenseless mammal, going to kill it?

Ask the other students in the class to suggest plans of attack. What weapons do the hunters have (spears tipped with worked stone points, rocks)? Are they limited to brute force (sheer numbers) or are there alternatives (boxing the animals into a corner, driving them over a cliff)? Make sure the students talk about the element of surprise and the technique of using fire to drive the animals in a desired direction. Ask all the students to decide which method they like best, and then have your actors play the scene.

Suggestions for discussion

1. In his book Aztec Ruins, the archaeologist John Corbett describes the killing of a bison by prehistoric hunters:

> "Ten thousand years ago, a small band of weary, footsore, hungry hunters cautiously approached a few bison which they had managed to stampede away from the main herd. . . . For a day and a half, the hunters had carefully followed the large, hairy mammals, hoping the beasts would lose their sense of danger and allow themselves to be boxed into a place where the hunters could approach close enough to kill them.
>
> "At last the moment was at hand. Warily, two hunters crawled along the slope of the canyon wall from opposite sides, seeking places from which they could throw large rocks upon the animals or hurl their spears with devastating force. Patiently, five more hunters waited below, concealed by the tall grass or behind convenient boulders. When the first two were in place, the leader gave the signal. Rocks

came tumbling down on the startled bison; spears whistled through the air and thudded into soft flesh; one or two missed, but most found their targets. Shouts and cries filled the air. The bison, caught by surprise, whirled and milled around the waterhole for a moment, then several broke for the open country. One was wounded, the spear in its flank bobbing like a wave-tossed spindle. On this animal the hunters concentrated; three more spears found their target, and the great beast went down thrashing wildly."

Ask the students to compare their hunt with this one.

2. What did the Paleo-Indian hunters do with the mammoth once they had killed it? Could they use all the meat? How would they preserve what they couldn't eat immediately? What part of the animal was probably considered a "real treat," eaten immediately after the kill as a reward? Did the prehistoric tribe have any use for the skin or bones of the animal? (Archaeologists have found remains of mammoths stripped only of their hides, not their flesh.)

3. What happened to the mammoths? Why did they die out? Ask the students for suggestions. Some scientists have theorized that the large animals disappeared because they could not survive the climatic changes accompanying the receding of the great sheets of ice that once covered North America. Others have suggested that tremendous earthquakes and other natural disasters wiped out hundreds of thousands of animals at one time. Still others suggest unknown diseases decimated the herds. But currently a fourth theory is receiving some attention: perhaps *man* himself was responsible for the extinction of the mammals, as he has been responsible for the extinction of so many species in historical times, from the dodo bird to the ivory-billed woodpecker.

You might want to read the students this passage from The First American: The Story of North American Archaeology, by C.W. Ceram:

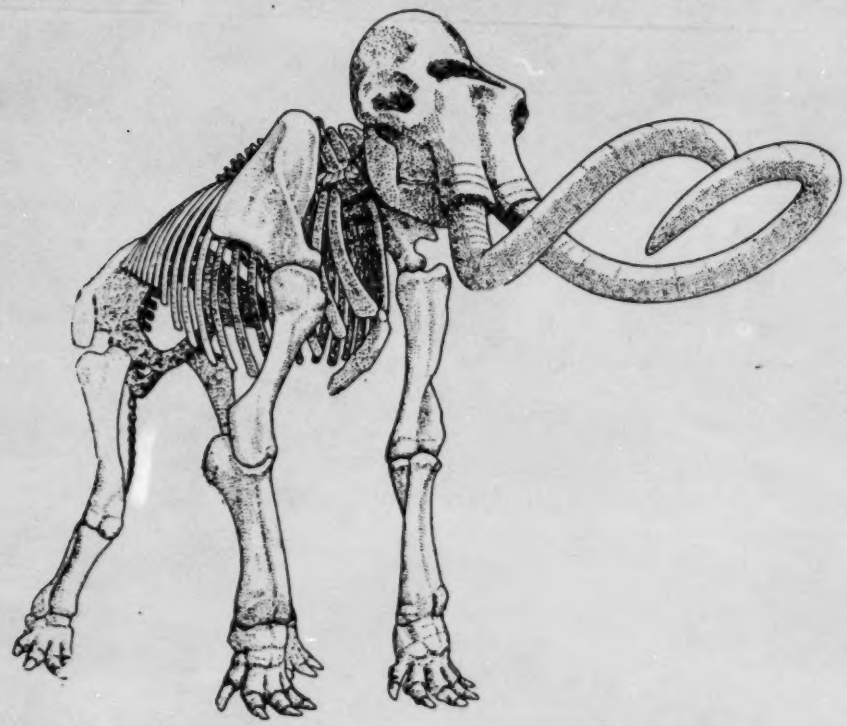
"As we give more thought to the theory of 'Pleistocene overkill,' . . . its plausibility increases. First and foremost, there were the hunting methods of Ice Age men. In order for them to kill any member of a bison or elephant herd 'it was necessary to kill them all . . . by driving them over a cliff.' (The word 'elephant' can validly be applied both to the mammoth proper and the smaller mastodon; both of these animals existed in North America.) And how would man have created stampedes of this sort? By his possession of the dread secret of making fire. We do not know to what extent he was able to control the fires once he had set them. But as the flames swept through forests and over prairies, they would have destroyed thousands of animals, although the hunting horde could make use of only two or three. And these wholesale killings must have had dire effects, for replacements were scanty. Since the Early Hunter undoubtedly preferred young animals for his game--he found it easier and less risky to pursue them than older animals, and their meat was surely tastier--the reproductive capacity of the species was cut down. What is more, elephants have a gestation period of from eighteen to twenty-two months and bear only a single calf. At this rate they could not easily maintain their numbers in the face of ruthless slaughter by that newcomer to the evolutionary scene, man."

Ask the students for their reactions. Discuss with them the terms *extinction*, *endangered species*, and *threatened species*. What other animals do students know of that are extinct? Endangered? Threatened? Would it matter to them if there were no more bald eagles? What man-made conditions threaten the existence of certain species, especially in the students' own area (pollution, urban environment, pesticides)? What steps can we take to ensure their survival (restrictions on hunting, banning certain chemicals, funding zoos and animal preservation areas)?

Do the students consider man an endangered species? Explain. How is man his own worst enemy?

Resources

Descriptions of the mammoth hunt are found in many general books on prehistory. The Time-Life book Early Man (by F. Clark Howell, New York, 1974) is one of the best; it's well illustrated and very readable. A vivid description of a bison hunt is in the January 1979 issue of National Geographic ("Bison Kill by Ice Age Hunters," by Dennis Stanford, National Geographic 155(1):114-121). C. Vance Haynes, "Elephant Hunting in North America (IN Pre-Columbian Archaeology: Readings from Scientific American (1980), pp. 35-44) is helpful.



PREHISTORIC MENU

Concept Prehistoric man was able to take from his environment a rich and varied diet.

Assignment Students will determine the diet of individuals in each of the four prehistoric traditions in the southeast United States. They will present their findings in a prehistoric "restaurant menu."

Objectives After completing this assignment, students will realize that prehistoric man was dependent on food sources in his immediate environment for his survival. They will be able to describe the diet of the four prehistoric traditions in the southeast United States and explain some methods of food gathering and preparation used by prehistoric man. They will also be able to name several wild plants found locally used for food both now and in prehistoric times.

Procedure

Set the following scene for the student:

"You're a prehistoric man. You've been working hard all day and you're hungry. What do you do? Go to McDonald's for a burger and a shake?

"Prehistoric man didn't have the alternatives we have today. There were no grocery stores, no restaurants, no refrigerators. Prehistoric man ate what he could find, by hunting and foraging, and, later, by cultivating domestic plants; he preserved what he could by drying. Deciding what to have for dinner could not be a spur-of-the-moment decision. It required forethought and hard work--otherwise there was no dinner.

"But just for fun, let's imagine a prehistoric restaurant. Maybe it's in a cave or under a canopy of trees. The tables are fallen logs, and rocks serve as chairs. The waiter brings by a menu, scrawled with charcoal on a white oak leaf. What does it say?

"Your assignment is to write a restaurant menu for one of the prehistoric traditions in the southeast: Paleo-Indian, Archaic, Woodland, or Mississippian. (You'll discover that archaeologists considered diet when they established the distinctive characteristics of each tradition.) You might want to group items by categories, e.g., appetizers, main courses, side dishes; or vegetables, meats, fruits. Be as specific as you can and as fanciful as you like. Give your restaurant a name, an address, and perhaps a motto. Use art materials to display the information attractively."

Suggestions for discussion

1. Did prehistoric man have a good diet by today's standards? Did he have three good meals a day?

2. Was his diet likely to vary with the seasons? Why? Does your diet vary with the seasons?

McMammoth's Archaic Restaurant

MENU

Appetizers

Bone grease and chopped hickory nut pate
served with amaranth crackers
Freshwater unionids
Relish tray: wild garlic, queen anne's lace, salamander egg jelly
Dried weasel strips

Main Courses

Boiled venison strips
Roast squirrel with wild cranberry sauce
Muskrat and groundnut stew
Whole drumfish baked in leaves
Blacksnake filet
All orders accompanied by acorn meal bread

Side dishes

Chenopodium salad
Cattail heads
Baked lotus roots

Beverages

Fresh river water
Sassafras tea
Fermented tree bark beer

Desserts

Fresh fruit in season
Raisin cobbler

Wintergreen berries

We use only natural ingredients!

3. Considering diet only, if you had to live in one of the four prehistoric traditions, which one would you choose? Why? (Remember that although the development of agriculture brought prehistoric man security, it resulted in a very starchy diet.)

4. Was it difficult for prehistoric man to gather food? What were some of the problems he encountered? Is it difficult for you or your parents to get enough food? What are some of the advantages you have? What are some of the disadvantages? (Remember, no chemicals were added to the plants prehistoric man gathered or the meat of the animals he hunted. There were no rules and regulations promulgated by a prehistoric Food and Drug Administration.)

5. How do you think prehistoric man prepared his food? How did he light a fire? What did he cook in? What did he eat out of? How did he clean up? Have you ever prepared your food similarly, perhaps on a camping trip?

6. Many of the wild foods gathered by prehistoric man are available today, but few individuals bother with them. What wild foods does your family eat? What wild foods would you like to try?

7. Would your diet change if you ate only what you could find in your environment? What would you miss most if you had to eat only what you could find in your environment? Orange juice? Bananas? Chocolate chip cookies? What could you substitute?

Related activities

1. Why not ask parents (or another class) to join you for a prehistoric meal? Send out invitations and enclose a copy of the menu. Hold the event outside and cook over an open fire.

2. Find out what domestic plants we raise in west Kentucky (or your own area) that wouldn't have been here five hundred years ago. When were these introduced? Why?

3. Is there any evidence that prehistoric man often had a poor diet?

Resources

Students should have access to general reference books and textbooks on prehistory and archaeology. A list of specialized references follows:

Coles, John. Archaeology by Experiment. New York, NY: Charles Scribner's Sons, 1973.

Gibbons, Euell. Stalking the Healthful Herbs. New York, NY: David McKay, Co., Inc., 1965.

Gibbons, Euell. Stalking the Wild Asparagas. New York, NY: David McKay, Co., Inc., 1962.

Gilmore, Melvin. Uses of Plants by the Indians of the Missouri Region. Lincoln, NB: University of Nebraska Press, 1977.

Johnstone, Merrily. "Notes From an Aboriginal Cook." IN The Pamunkey Project: Student Papers, edited by Errett Callahan (Experimental Archaeology Papers #4), pp. 145-155. Richmond, VA: Virginia Commonwealth University, Department of Sociology and Anthropology, 1976.

Kavasch, Barrie. Native Harvests: Recipes and Botanicals of the American Indian. New York, NY: Vintage Books, 1979.

Lee, Richard B. and DeVore, Irven, editors. Man the Hunter. Chicago, IL: Aldine-Atherton, Inc., 1968. *Fairly technical, but worth the trouble.*

Olsen, Larry Dean. Outdoor Survival Skills. Provo, UT: Brigham Young University Press, 1973.

Petersen, Lee. A Field Guide to Eastern Edible Wild Plants. Boston: Houghton Mifflin Company, 1978.

Ritzenthaler, Robert E. and Ritzenthaler, Pat. The Woodland Indians of the Western Great Lakes. American Museum Science Books. Garden City, NJ: Natural History Press, 1970.

Sharpe, J. Ed and Underwood, Thomas B. American Indian Cooking and Herb Lore. Cherokee, NC: Cherokee Publications, 1973.

Watson, Patty Jo, editor. Archaeology of the Mammoth Cave Area. New York, NY: Academic Press, 1974.

BARTERING

Concept: Some prehistoric artifacts recovered by archaeologists are made from materials not native to the environment or reflect workmanship unlike other recovered artifacts. It is assumed these goods were acquired through barter with other prehistoric cultures.

Assignment: Students will exchange items they have brought to class for items brought by other students to simulate a prehistoric trading economy based on barter.

Objectives: After completing this assignment, students will be able to explain how a trading economy based on barter works and why prehistoric man would resort to barter to obtain certain items.

Procedure

Each student should bring to class an item he is willing to trade. Don't bring factory-made "white elephants"; bring natural objects or home-baked goodies or items crafted from natural materials. Suggest pine cones, feathers, or pretty rocks; cookies or snacks; god's eyes or drawings.

If your class is large, it might be advisable to divide the students into two groups (10-15 students in each group is best). Give the students twenty minutes to exchange the item they brought for something else. Any kind of bargaining (especially "soft soap") is permissable. Some students may have to barter for something they don't want in order to get what they do want. Make sure students keep track of all their exchanges.

This activity can be rather noisy, but it's great fun. You may want to do it outside.

Suggestions for discussion.

1. Who traded? Who didn't? Did you get what you wanted immediately? Not at all? Why not? Did you have to compete with others for what you wanted? Did you trade with your best friends or with students who had things you wanted? Do you think you got a good deal? How did you decide whether you got a good deal or not?

2. Would it be difficult to barter if the barterers did not speak the same language? How would they do it? (Try it!)

3. What would prehistoric man barter for? (High quality flint, pots, mica, copper)

4. Discuss with the students some of the proof we have that prehistoric man had set up a reasonably sophisticated trading network.

5. Do you barter in your everyday life? Give some examples.

NATURE DRAWING

Concept: Prehistoric man turned to his natural environment for creative expression, both for materials and subject matter.

Assignment: Students will draw and color a picture using paints made from natural materials in their environment.

Objectives: After completing this assignment, students will realize that prehistoric man's dependance on his immediate environment extended to creative expression. They will be able to draw a picture similar to those which might have been drawn by prehistoric people five thousand years ago and identify some plant and mineral material in their environment which might have been used by prehistoric man for creating pictures.

Procedure

Discuss the forms of artistic expression chosen by prehistoric man with the students. Ask them to suggest what sorts of things he made and how he made them. Did he draw? With what? Show photographs of pottery ornaments, shellwork, basketry, etc., and especially of the cave drawings found all over the world. (For example, in a part of Mammoth Cave, Kentucky, not open to tourists, is a series of beautifully executed drawings of geometric designs.)

Conduct the activity outside. Students will make a drawing, preferably of a prehistoric object or scene, using only the materials available to prehistoric man. Their drawings may be of a giant mammoth, a prehistoric basket or spearpoint, a geometric pattern or design, or an imaginary view of an archaic campsite.

Students are in charge of finding their own materials, although the teacher may offer suggestions. Use a strip of bark, large leaf, or large, flat rock instead of drawing paper. Sketch an object or scene with charcoal from a campfire. Fill in the outlines (using your finger or a piece of grass) with paints made from plant and mineral material. Try *brown* from soils; *yellow* from dandelions, buttercups, and goldenrod; *green* from leaves and grasses; *orange* from daylilies; *red* from berries; *blue* from chicory flowers; and *black* from charcoal. Moisten soils with water; crush plants and flowers. Identify the sources of the colors with the aid of standard field guide books.

Suggestions for discussion

1. Why did prehistoric man make drawings? Don't we all share an innate desire to express ourselves creatively? Do you think there was a ceremonial or ritualistic purpose for any of the drawings?

2. Did the time of year influence the types of drawings prehistoric man made?

3. Why isn't there more evidence of the drawings made by prehistoric man? Why have the drawings on cave walls been preserved?

4. How did the students' drawings turn out? Was there a shortage of different colors? What do you think prehistoric man used instead of brushes for fine detail (blades of grass, tips of shells)?

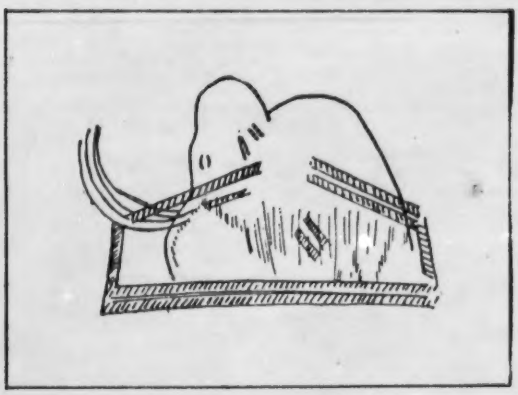
Related activities

1. Students pretend they are archaeologists uncovering a 5,000 year old site. They uncover a drawing (their own drawing). They write a report interpreting the drawing and explaining why it was made.

2. Research forms of prehistoric artistic expression (e.g., cave art, the Southern Cult).

Resources

Excellent examples of prehistoric art, especially cave art, are found in Early Man, by F. Clark Howell (New York, NY: Time-Life Books, 1973), pp. 145-152, 158-163.



SIGN LANGUAGE

Concept: Prehistoric man would have used hand signs to communicate with neighboring peoples who did not share his spoken language. This form of non-verbal communication is largely imitative, mimicing the movements and appearance of objects.

Assignment: Students will invent hand signs to express the names of objects in their environment.

Objectives: After completing this assignment, students will understand how prehistoric man developed hand signs and for what purposes he used them.

Procedure

Discuss non-verbal communication with the students. What examples of non-verbal communication are students familiar with (traffic symbols, baseball umpire's gestures, deaf sign language)? All students will probably have seen examples of the sign language used by historic Indian tribes on television or in the movies. We assume that prehistoric man used similar signs.

Sign language is not difficult to understand, nor is it difficult to invent signs to express actions or emotions or objects in our environment. Demonstrate a number of the gestures we use to communicate with others every day. Try emotions: look happy, sad, angry, frustrated, and ask students to identify the emotion you are portraying. Try actions: point to a student and motion him to come up to the front of the class. Hold your finger to your lips to signal him to be quiet. Direct him (without speaking) to turn off the lights or close the door or erase the blackboard.

The students will invent signs to express the names of objects in their environment. Divide the class into three or four groups. Give each group a list of the following words: tree, water, fish, earth, man, deer, rain, flower, bear, baby. Students are to use hand and facial gestures only to express the names of these objects. Tell them that simple signs are often the most effective. (*Pointing* is not permitted.)

After twenty minutes, bring the groups together. In turn, representatives of each group act out the signs they have invented, in random order. Members of the other groups attempt to identify each sign.

Suggestions for discussion

1. Compare the signs the groups invented. What similarities are there? Are there more similarities than differences? Which group had the best signs? Why were they better than the others?

2. What words would prehistoric man have signs for that we would not have today? What words would we have signs for today that prehistoric man would not have had?

3. What limitations does sign language have?

Related activities

1. Add signs to express the names of objects found in prehistoric times to the students' vocabularies (e.g., *mammoth, spear, pot*). Add signs to express actions and emotions (e.g., *hungry, curious, run, eat, kill*). Can students make sentences? *The hungry man kills the mammoth with the spear. The deer runs through the forest.*

2. Ask a deaf person to "speak" to the class with the aid of an interpreter.

3. Students can make new names for themselves using signs, e.g., *Running Bear, Little Flower.*

4. Play charades.

5. Scientists have taught some chimpanzees to communicate with humans (and with each other) using sign language. Research these efforts and report to the class.

6. Make signs without words to post on school property, e.g., *Don't Litter, No Parking, Save Energy--Turn Off the Lights.*

Resources

Tomkins, William. Indian Sign Language. New York, NY: Dover Publications, Inc., 1969. 106 pp.

TIME CAPSULE

Concept The archaeologist's reconstruction of a prehistoric culture is based partially on artifacts recovered from a prehistoric site. The picture he draws must be regarded as incomplete and biased.

Assignment Students will compile items for an imaginary time capsule to be uncovered by archaeologists thousands of years in the future.

Objectives After completing this assignment, students will be able to explain why we say the archaeologist's reconstruction of prehistory is based on incomplete evidence. They will be able to evaluate, in one way, the material culture that surrounds them.

Procedure

The archaeologist collects and analyzes prehistoric artifacts in order to reconstruct a prehistoric culture. Unfortunately, the artifacts that are preserved over time do not give a complete picture of a vanished culture.

What if we could choose the items from our culture for an archaeologist thousands of years from now to examine? What if the items we choose were the only items he had from which to reconstruct our culture? What should we choose?

Describe a time capsule to the students. A time capsule contains objects from a particular time and place, intentionally buried or otherwise hidden by people for other people in the future to find. (During the U.S. Bicentennial many time capsules were buried; one, on the theme of childhood, contained a skateboard, a Sesame Street puppet, and a set of tinkertoys.)

Divide the class into small groups. Each of the groups will select ten items which members of the group feel best represent their culture for an imaginary time capsule. Half of the groups must choose only items which they think will be preserved for thousands of years; the other groups may choose items regardless of whether or not they are perishable. Announce the size of the time capsule before students begin: one meter square and one meter high is recommended. (You might bring a cardboard box of those dimensions to class.) No item may be included in the time capsule without majority support. No books or recordings, please. Some suggested items: wristwatch, Big Mac styrofoam wrapper, child's toy car, handgun. Selecting the items should take about twenty minutes.

When the time is up, ask the groups to exchange lists. Now each group must decide what assumptions archaeologists thousands of years from now would make about our culture based on the items in the time capsule. One student from each group should make a report to the rest of the class.

Suggestions for discussion

1. Is the picture students draw of our twentieth century culture after considering the items in the time capsule a fair one? Is it biased in any way? Do students consider it a complete picture?

2. Ask each group to explain why they selected the items they did. Was there disagreement within the groups? Was the same item chosen by more than one group? After reviewing the items chosen by the other groups, would any of the groups like to change their selections?

3. What artifacts does the archaeologist generally find at prehistoric sites? Why is pottery so important to the archaeologist? What climatic conditions aid preservation of artifacts over time?

B A N D E L I E R

A SIMULATION GAME IN CULTURAL RESOURCE MANAGEMENT

Concept: Through management of our cultural resources, we are able to preserve our heritage for future study.

Assignment: Students will participate in a simulation game designed to introduce them to the concept of cultural resource management.

Objectives: After completing this activity, students will understand the issues involved in cultural resource management and be able to explain the problems we face when we must make decisions regarding cultural resources. They will realize that no question involving values is ever answered simply.

Procedure

Discuss the terms *simulation game* and *cultural resource management* with the students.

The following paragraphs describe the situation in which players of the simulation game will be involved. You may wish to reproduce them so that each student has a copy to which he can refer during the game.

"The town council of Bandelier is planning to build a new park to celebrate the town's centennial next year. Practically everyone is in favor of the new park. Townspeople are especially eager that the park be even more beautiful than the one in the neighboring town of Jennings. An intense rivalry exists between the two towns.

"Bandelier, population 5,013, is located in the middle of the farm belt. The town is fairly prosperous because it serves as a central market for outlying tobacco districts. Bandelier is an old, established community. The residents are very proud of their small and friendly town and are determined that it will not lose its distinctive character.

"The town owns a two-acre strip of property close to the downtown shopping area which would be an ideal location for the park. There is no other suitable location within the town's budget. The proposed site is a pretty area--slightly hilly, and a small stream runs part way around the perimeter--but only two blocks north of the Bandelier Savings and Loan and the Dairy Queen.

"Local merchants and service organizations are quite excited about the project. A group of downtown businessmen has formed a "Spark Behind the Park" organization to help raise money. High school students have offered to contribute funds raised by candy sales and car washes. The Bandelier Savings and Loan is sponsoring a contest to chose the best park logo from designs submitted by town residents. Bids have already been made for the construction contract.

"However, last Friday an archaeologist from the state university at Jennings spoke to a special meeting of the town council. She told the council that she believes there is a prehistoric Mississippian mound in the middle of the proposed site for the new park. She exhibited a sizeable collection of pottery pieces and worked stone artifacts from the area to support this statement. Her findings and conclusions have been verified by the state archaeologist's office.

"The archaeologist is petitioning the town of Bandelier for permission to subject the site to a complete archaeological analysis. She is certain that excavation of the site would contribute greatly to knowledge about the area's prehistoric inhabitants.

"Members of the town council were very disturbed by this request. After a long debate, they voted to hold a public hearing on the proposed park construction. They have invited individuals representing various viewpoints to make presentations at an open meeting. Following the presentations, residents of Bandelier will be asked to consider the various alternatives and register their preference. A simple majority is all that is necessary to make a binding decision."

Choose ten students to play the roles of those individuals making presentations at the meeting. The other students will be the residents of Bandelier who will vote on the issue.

Following is a list of the individuals invited to speak at the meeting:

Steven Abernathy, State Archaeologist
Dr. Abernathy wants the site left untouched, so that the clutural resources will be preserved until a workable plan for excavation and analysis can be developed.

Alicia Ackroyd, archaeologist from Jennings State University
Dr. Ackroyd wants to excavate the site, analyze the findings, and publish the results. She feels that the new information will contribute greatly to knowledge about the area's prehistoric inhabitants.

Stephanie Cameron, Sierra Club member
Stephanie, a high school student, admits that cultural resources are important, but she believes that natural resources are more important. She wants the park to be as natural as possible.

Mike Martin, mayor
Mayor Martin wants to please everyone. He suggests the archaeologists investigate part of the site; the other part would be fenced off for the park.

Sam Owens, hardware store owner
Mr. Owens is the leader of the "Spark Behind the Park" organization. He thinks the park will add to the town's prestige in the county and help the town to grow more prosperous. Moreover, his son is a construction worker, and Mr. Owens is afraid the proposed excavation could take jobs away from Bandelier residents.

Sarah Peters, school principal

Ms. Peters thinks the students will learn a great deal from watching the archaeologists excavate the site. She believes the residents of Bandelier should not stand in the way of the opportunity to learn more about themselves and their past.

Carl Potter, Chief of Police

Chief Potter doesn't want the archaeologists in Bandelier. He fears the out-of-towners and the proposed excavation will destroy the character of his "nice little town."

Mrs. Riordan, retired

Mrs. Riordan's property adjoins the proposed site for the park. She wants neither park nor excavation because either way her privacy will be destroyed. Some of her neighbors support her position.

Paula Thompson, president of the PTA

Ms. Thompson has four children. She believes that an attractive and well-designed park would encourage family togetherness and be good for the community's spirits. Children in Bandelier need a safe place to play.

Howard Sussman, president of the county Historical Society

Mr. Sussman wants to encourage interest in local history. He is in favor of excavating the site, but suggests that a museum be established along with it.

Encourage the students to be as expressive as possible in their presentations. They may elaborate upon their character's opinions as much as they wish. For example, Alicia Ackroyd might complain that involving the townspeople in any way would interfere with her research. Ms. Thompson might be a member of the Bandelier Garden Club, looking forward to landscaping the new park. One of the characters in favor of the park might introduce the rivalry with the neighboring town of Jennings. It's fun to use props, e.g., a tin foil star for the chief of police, a plastic flower corsage for Mrs. Riordan, an oversized book for the school principal. During the discussion following the presentation, the audience may wish to respond to the panel in the guise of residents of Bandelier.

Allow at least one class period (one hour) for the simulation. Following is a timetable:

1. It is suggested that you go over the situation and assign the roles the night before you plan to conduct the simulation. The next day each student assigned a role should come to class prepared to make his presentation. The others should review the situation and begin thinking of possible solutions to the problem. (If this is not possible, allow the speakers fifteen minutes to prepare their presentations while the voters consider alternative solutions.

2. Allow each speaker 3-5 minutes for his presentation. Other speakers and members of the audience are not allowed to ask questions or make comments.

3. After the speakers have concluded their presentations, summarize the significant positions briefly. Then open the floor for discussion. Members of the panel are permitted to take part. Members of the audience may question them, or they may simply state their own views. Encourage free debate. Allow 20-30 minutes for the discussion.

4. Following the discussion, write on the blackboard the proposed solutions to the problem. There should be at least four: the archaeological excavation, the park, the "half-and-half" proposal, and the "hands-off" proposal. Students may come up with other feasible alternatives (and some not so feasible!).

5. Call for the vote.

Suggestions for discussion

1. Ask individuals why they voted as they did. Was your mind made up from the beginning or did you change it? Who were the most convincing speakers?

2. Ask the students who played the roles of characters for their reactions. Were your "gut" feelings different from your assigned role? Do you think you could have been more persuasive if you had a role you sympathized with?

3. Ask the students to explain what they learned from the simulation.

Related activities

1. Each student writes a newspaper articles summarizing the reasons for holding the hearing and the results of the vote; or each student chooses a character and in the identity of that character writes an editorial for the newspaper explaining his position.

2. The state of Kentucky requires an archaeological survey of a site before proposed construction can begin. Find out if the same rule applies in your state. Then arrange for guest lectures by (a) a representative of the office of the state archaeologist or an archaeologist from a nearby university to discuss the need for cultural resource management; (b) a contractor to describe the steps he must take before he gets clearance to build.

ARCHAEOLOGY SCRAMBLE

Hidden in the squares below are twenty-four terms dealing with archaeology and prehistory. The words may appear horizontally, vertically, or diagonally. They may be written in reverse order or correct order. How many can you find?

Example: The word *archaeology* begins in the bottom left-hand corner and continues to the top right-hand corner.

R	E	L	L	S	S	D	N	A	L	D	O	O	W	N	F	M	Y
N	X	T	R	P	X	F	G	G	Y	X	R	X	I	O	E	A	G
A	C	A	L	P	R	E	H	I	S	T	O	R	Y	I	N	S	O
I	A	L	T	O	A	P	R	X	F	X	K	G	Q	T	V	T	L
P	V	T	C	T	A	L	H	I	N	L	O	G	O	A	I	O	O
P	A	A	A	T	R	K	E	V	A	L	I	S	V	V	R	D	P
I	T	D	F	E	C	Z	L	O	O	T	B	N	Y	R	O	O	O
S	I	N	I	R	H	K	V	E	I	J	I	Z	T	E	N	N	R
S	O	U	T	Y	A	B	A	R	T	N	X	O	N	S	M	P	H
I	N	O	R	T	I	H	M	U	N	K	D	G	N	E	E	T	T
S	D	M	A	A	C	F	E	T	I	S	W	I	L	R	N	F	N
S	C	S	U	R	V	E	Y	L	O	O	V	D	A	P	T	F	A
I	H	G	A	A	W	B	T	U	P	Q	U	X	Y	N	Q	R	I
M	L	D	E	N	D	R	O	C	H	R	O	N	O	L	O	G	Y

The words which appear in the puzzle are listed below. The teacher may want to give students in the lower grades a copy of the list. High school students should be able to solve the puzzle without it.

anthropology
archaeology
archaic
artifact
atlatl
culture
dedrochronology
dig
environment
excavation
flint
mastodon
mississippian
mound
paleoindian
point
pottery
prehistory
preservation
seriation
site
survey
tool
woodland

The solution to the puzzle is on the following page.

Solution to Archaeology Scramble

R E L L S S D N A L D O O W N F M Y
N X T R P S F G G Y X R X I O E A G
A C A L P R E H I S T O R Y I N S O
I A L T O A I R X F X K G Q T V T L
P V T C T A L H I N L O G O A I O O
P A A A T R K E V A L I S V V R D P
I T D F E C Z L O O T B N Y R O O O
S I N I R H K V E I J I Z T E N N R
S O U T Y A P A R T N X O N S M P H
I N O R T I H M U N K D G N E E T T
S D M A A C F E T I S W I L R N F N
S C S U R V E Y L O O V D A P T F A
I H G A A W B T U P Q U X Y N Q R I
M L D E N D R O C H R O N O L O G Y

Words which appear in the puzzle are as follows:

anthropology
archaeology
archaic
artifact
atlatl
culture
dendrochronology
dig
environment
excavation
flint
mastodon
mississippian
mound
paleoindian
point
pottery
prehistory
preservation
seriation
site
survey
tool
woodland

SUGGESTIONS FOR OTHER ACTIVITIES

1. Take a field trip to an archaeological site. Consult the bibliography (Section VI: SITES AND MUSEUMS OPEN TO THE PUBLIC) for suggestions.

2. Ask a professional archaeologist to speak to the class on (a) what a professional archaeologist does; (b) recent archaeological discoveries; (c) the excavation of an archaeological site in the vicinity; (d) federal and state legislation regarding cultural resources.

3. Ask a geologist to tell the class how the physical environment has has changed in the last 1,000 years, 10,000 years . . . back before the Ice Age! Ask a biologist to tell them how animals and plants have changed since prehistoric times.

4. Have an archaeologist show the students how to use aerial maps and topography maps to predict site location.

5. Attend a meeting of the local archaeological association. (See the bibliography, Section V: ASSOCIATIONS.) Or, ask a member of the association to speak to the class on the association's aims and accomplishments. Start a chapter in your community if there isn't one already.

6. A detailed description of an activity exploring the archaeological concept of *stratigraphy* is in Frontiers in the Soil: The Archaeology of Georgia, by Roy S. Dickens, Jr. and James L. McKinley (Atlanta, GA: Frontiers Publishing Company, 1979), pp. 104-107.

7. F. Clark Howell, in Early Man (New York: Time-Life Books, 1973, pp. 28-29), describes the special skills required of individuals participating in the professional excavation of a prehistoric site. In the field, we find the paleoanthropologist, the geologist, the surveyor, the draftsman, the photographer, and the preparator; in the laboratory, the petrologist, the palynologist, the pedologist, the geochemist, the paleontologist, and the physical anthropologist. Assign each student one of these roles. Have them research and report to the class on the contribution each makes to the search for prehistoric man.

8. Identify and label students' artifact collections. Exhibit them in a display case in the school or in the community.

9. What is being done to protect cultural resources in your area? Have the students find out, and then write a letter to their congressman asking him to support cultural resource management legislation.

10. *How they lived:* Start a fire the way prehistoric man would have. Learn to make cordage, tan hides, weave baskets, carve bone, make jerky and pemmican . . . the list is endless! Flintknapping (making stone tools) isn't that difficult, but it's impossible to explain how on paper; see if you can arrange a demonstration for the students. Try making an atlatl--and using it! How about bows and arrows, blowguns? Instructions for most of these are in Outdoor Survival Skills, by Larry Dean Olson (Provo, UT: Brigham Young University Press, 1967).

11. Read The Inheritors, by William Goldman (New York, NY: Simon and Schuster, 1971). It describes how one group of prehistoric men is displaced by another which is able to manipulate the environment more effectively for its own survival.

12. To help the students understand how difficult it is for archaeologists to interpret prehistoric artifacts, try this: Obtain a copy of a turn-of-the-century mail order catalog. Find pictures of ten items which people in 1980 would not be able to identify (it's very easy); cut out the descriptions of the items separately. Now mix them up. Can students match the picture with the correct description?

13. Authors of archaeological textbooks rely on examples to explain the archaeological concept of *seriation*, e.g., style changes in tombstones (John Deetz, Invitation to Archaeology, Garden City, NY: Natural History Press, 1967), the evolution of the automobile (Franklin Folsom, Science and the Secret of Man's Past, Irvington-on-Hudson, NY: Harvey House, Inc., 1966). Ask students to develop their own examples of seriation, e.g., the process of decay, the rise and fall of hemlines, the changing of the seasons.

ANNOTATED BIBLIOGRAPHY OF
RESOURCE MATERIALS AND TEACHER AIDS

NOTES ON USE OF THE BIBLIOGRAPHY

The following bibliography of resource materials and teacher aids is intended to complement this activity booklet. It focuses on west Kentucky and the surrounding states of Indiana, Ohio, Tennessee, Missouri, and Illinois. Only those materials which the authors feel are suitable for junior high and high school students are listed.

The bibliography is divided into seven sections:

I. BOOKS
includes curriculum guides, bibliographies, and directories

II. JOURNALS

III. AUDIO-VISUAL MATERIALS

IV. SIMULATION GAMES

V. REGIONAL ASSOCIATIONS

VI. SITES AND MUSEUMS OPEN TO THE PUBLIC

VII. WORKSHOPS AND FIELD SCHOOLS FOR HIGH SCHOOL STUDENTS

Annotations have been appended to citations (in italics) whenever the subject content is not sufficiently revealed by the title. Where pertinent, the recommended grade level is also indicated in the annotation.

I. BOOKS

Special sections on curriculum guides, bibliographies, and directories follow this section on books.

Appleton, Leroy H. American Indian Design and Decoration. New York, NY: Dover Publications, Inc., 1977. 277 pp.

Braidwood, Robert G. Prehistoric Men. Glenview, IL: Scott, Foresman, and Co., 1975. 213 pp. *Survey of world prehistory.*

Brennan, Louis A. Artifacts of Prehistoric America. Arlington, VA: Popular Archaeology, 1975. 200 pp. *Describes and illustrates most North American projectile point types, other stone tool types, and ceramic types.*

Brennan, Louis A. A Beginner's Guide to Archaeology. New York, NY: Dell Publishing Company, 1973. 379 pp. *A how-to manual; includes chapters on artifact identification, sites in the U.S., and state authorities.*

Callahan, Errett. The Old Rag Report: A Practical Guide to Living Archaeology. Richmond, VA: Virigina Commonwealth University, Department of Sociology and Anthropology, 1973. 156 pp. *Field report of a summer course in living archaeology.*

Callahan, Errett, editor. The Pamunkey Project: Student Papers. Richmond, VA: Virginia Commonwealth University, Department of Sociology and Anthropology, 1976. *Student papers from a summer field course in living archaeology.*

Ceram, C.W. The First American. New York, NY: Harcourt, Brace, Jovanovich, Inc., 1971. 357 pp. *Highly readable history of North American archaeology, stressing individuals and their discoveries.*

Chapman, Carl H. and Chapman, Eleanor. Indians and Archaeology of Missouri. Missouri Handbook No. 5. Columbia, MO: University of Missouri Press, 1972. 161 pp.

Coles, John. Archaeology by Experiment. New York, NY: Charles Scribner's Sons, 1973. 150 pp.

Deetz, James. Invitation to Archaeology. Garden City, NY: Natural History Press, 1967. 150 pp. *Excellent introduction to methodology and field techniques, with clear examples.*

Folsom, Franklin. Science and the Secret of Man's Past. Irvington-on-Hudson, NY: Harvey House, Inc., 1966. 192 pp. *Simple but thorough discussion of the time-measuring devices archaeologists use to date sites and artifacts.*

Hester, Thomas R.; Heizer, Robert F.; and Graham, John A. Field Methods in Archaeology. Palo Alto, CA: Mayfield Publishing Company, 1975. 408 pp. *A basic book on field methods; covers site survey, excavation, artifact preservation, equipment, and photographic techniques.*

Hole Frank and Heizer, Robert F. Prehistoric Archaeology. New York, NY: Holt, Rinehart and Winston, Inc., 1973. 477 pp. *Popular college textbook.*

Howell, Francis Clark. Early Man. Life Nature Library. New York, NY: Time-Life Books, 1973. 200 pp. *Describes the evolution of modern man from his prehistoric beginnings. Lavishly illustrated.*

Hudson, Charles. The Southeastern Indians. Knoxville, TN: University of Tennessee Press, 1977. 573 pp. *Definitive study of the culture, society, prehistory, and history of the native American.*

Jennings, Jesse D. Prehistory of North America. New York, NY: McGraw-Hill Book Company, 1974. 436 pp. *Popular college textbook.*

Kavasch, Barrie. Native Harvests: Recipes and Botanicals of the American Indian. New York, NY: Vintage Books, 1979. 202 pp.

Kellar, James H. An Introduction to the Prehistory of Indiana. Indianapolis, IN: Indiana Historical Society, 1973. 76 pp. *Written for the general public.*

Lewis, Thomas M.N. and Kneberg, Madeline. Tribes That Slumber. Knoxville, TN: University of Tennessee Press, 1958. 196 pp. *Overview of North American archaeology with special emphasis on Tennessee archaeology. Hypothetical reconstruction of cultures is an integral part of the book.*

MacGowan, Kenneth and Hester, Joseph A., Jr. Early Man in the New World. New York, NY: American Museum of Natural History/Anchor Books, 1962. 333 pp.

McHargue, Georgess and Roberts, Michael. A Field Guide to Conservation Archaeology in North America. Philadelphia, PA: J.B. Lippincott Company, 1977. 319 pp.

McKern, Sharon S. and McKern, Thomas W. Living History: An Introduction to Physical Anthropology and Archaeology. Menlo Park, CA: Cummings Publishing Company, 1974. 274 pp. *Textbook for high school use.*

Nance, Jack D. Ancient Man in Land Between The Lakes. Golden Pond, KY: Tennessee Valley Authority, 1974. 40 pp. *Written for the general public.*

Olsen, Larry Dean. Outdoor Survival Skills. Provo, UT: Brigham Young University Press, 1973. 188 pp. *A how-to manual--make shelters, make projectile points, identify edible and medicinal plants, make clothes, cure hides, etc.*

Potter, Martha H. Ohio's Prehistoric Peoples. Columbus, OH: Ohio Historical Society, 1968. 75 pp. *Written for the general public.*

Ritzenthaler, Robert and Ritzenthaler, Pat. The Woodland Indians of the Western Great Lakes. American Museum Science Books. Garden City, NY: Natural History Press, 1970. 178 pp. *Thorough description of material culture.*

Robbins, Maurice. The Amateur Archaeologist's Handbook. New York, NY: Crowell Publishing Co., 1973. 288 pp. *Describes site survey, mapping, excavation, and analysis. Discusses the role of the amateur in archaeology.*

Schmandt-Besserat, Denise. Archaeology. Austin, TX: Steck-Vaughn Co., 1974. 42 pp. *Archaeological terms and processes in simple language (grade 7).*

Schock, Jack M. Prehistoric Indians of Southern Kentucky. Bowling Green, KY: Arrow Enterprises, 1978. 33 pp. *Written for the general public.*

Sharpe, J.E. and Underwood, Thomas B. American Indian Cooking and Herb Lore. Cherokee, NC: Cherokee Publications, 1973. 32 pp.

Smith, Gerald. Chucalissa Revisited. Memphis, TN: Chucalissa Indian Museum, n.d. 20 pp. *Archaeological evidence is pieced together to tell the story of Chucalissa, an indian village some 1,000 years old now open to the public.*

Smith, Harriet. Prehistoric People of Illinois. Chicago, IL: Field Museum of Natural History, 1974. *Written for the general public.*

Streuver, Stuart and Holton, Felicia Antonelli. Koster: Americans in Search of Their Prehistoric Past. Garden City, NY: Anchor Press/ Doubleday, 1979. 249 pp. *Describes the excavation of the Koster site in Illinois. Discusses terms and techniques, especially Streuver's concept of the "new archaeology."*

Thomas, David Hurst. Archaeology. New York, NY: Holt, Rinehart, and Winston, 1969. 510 pp. *Introductory textbook for advanced high school students.*

Willey, Gordon R. An Introduction to American Archaeology. Volume I: North and Middle America. Englewood Cliffs, NJ: Prentice-Hall, Inc., 1966. 530 pp. *College level textbook. Invaluable teacher reference.*

Curriculum Guides

Baltimore City School System. World Cultures. Baltimore, MD, 1975. 230 pp. (ED 113 254) *Classroom units on world history. Unit 2, "Origins of Humanness," discusses archaeology. Grade 9.*

Cooper, Nancy. Introduction to Archaeology. Miami, FL: Dade County Public Schools, Division of Instruction, 1971. (ED 071 939) *Study of past peoples through ancient world and local history. Emphasis on culture. Includes report topics and activities. Grades 10-12.*

Dickens, Roy S., Jr. and James L. McKinley. Frontiers in the Soil: The Archaeology of Georgia. Frontiers Publishing Company, 1790 Laurelwood Drive S.W., Atlanta, GA 30311. 1979. 111 pp. *Overview of southeastern archaeology with examples drawn from Georgia prehistory (easily adapted to local prehistory). Emphasizes cultural resource management. Written for student, grades 7-10.*

Dynneson, Thomas L. Precollegiate Anthropology: Trends and Materials. University of Georgia Anthropology Curriculum Project. Athens, GA, 1975. 41 pp. *Evaluation of curriculum materials. Discussion of anthropology in high school social studies curriculum. Grades 7-9.*

Johnson, Ellen K. Cultural Development. Social Studies, Course II, Unit II. Teacher's Manual. Urbana, IL: University of Illinois, n.d. 290 pp. (ED 064 214) *Grades 7-12.*

Bibliographies

Gallagher, James J. An Annotated Bibliography of Anthropological Materials for High School Use. New York, NY: MacMillan Co., 1967. 135 pp.

Wisconsin Anthropology Society, University of Wisconsin at Milwaukee. Bibliography of Anthropology for Primary and Secondary School Students and Teachers. Milwaukee, WI, 1974. 26 pp.

Directories

American Association of Museums/Smithsonian Institution. Museums Directory of the United States and Canada. Washington, DC, 1965. 1039 pp. *Includes archaeological museums and sites.*

Anthropology Curriculum Project, University of Georgia. Directory of Teachers of Precollegiate Anthropology. Athens, GA, 1977. 7 pp.

Folsom, Frank. America's Ancient Treasures. New York, NY: Rand McNally & Co., 1973. 202 pp. *Travel guide to archaeological sites and museums open to the public. Organized by region; includes brief discussions of regional prehistory.*

II. JOURNALS

The following list includes only those journals judged not excessively technical for the high school student.

Archaeology (bimonthly)
Archaeological Insititute of America
53 Park Place
New York, NY 10007

Early Man (quarterly)
Northwestern Archaeology
P.O. Box 1499
Evanston, IL 60204

Kentucky Archaeological Association Bulletin (biannually)
Department of Sociology and Anthropology
Western Kentucky University
Bowling Green, KY 42101

Missouri Archaeologist (bimonthly)
Department of Anthropology
University of Missouri
Columbia, MO 65210

Tennessee Anthropologist (biannually)
Tennessee Anthropological Association
Department of Anthropology
University of Tennessee
Knoxville, TN 37916

Tennessee Archaeologist (biannually)
Tennessee Archaeology Society
Department of Anthropology
University of Tennessee
Knoxville, TN 37916

III. AUDIO-VISUAL MATERIALS

The American Indian: A Study in Depth. Warren Schloat Productions, Pleasantville, New York. 1970. *Set of six filmstrips and six cassettes, one of which, "Before Columbus," stresses prehistory. Teacher's guide includes suggested activities for each program. Grades 5-12.*

Archaeological Dating: Retracing Time. Encyclopedia Britannica Education Corp., 425 Michigan Avenue, Chicago, IL 60611. 1976. *16 mm, 18 min. film. $222.00 sale. Grades 9-12.*

Colonial Six. McGraw-Hill Films, 110 Fifteenth Street, Del Mar, CA 92014. 1966. *16 mm, 18 min. film. $15.00 rental, $375.00 sale. Describes the excavation and analysis of Plymouth Plantation in Massachusetts, a 17th century colonial plantation. Introduces techniques of historical archaeology. Grades 9-12.*

Doorway to the Past. Colonial Williamsburg, Film Distribution Section, Box C, Williamsburg, VA 23185. *16 mm, 28 min. color film. Describes excavation work at Colonial Williamsburg and the reenactment of colonial life based on what was retrieved and researched. Introduces techniques of historical archaeology. Grades 7-12.*

The Early Americans. Shell Oil Film Library, Film Division, 1 Shell Plaza, Box 2463, Houston, Texas. 1976? *16 mm, 41 min. color film. Free loan, $140.00 sale. Overview of American archaeology. Excellent introduction to unit on prehistory. Grades 7-12.*

The Flint Worker. Informational Materials, Inc., 1615 West Burbank Boulevard, Burbank, CA 91506. *16 mm, 25 min. film. $25.00 rental, $250.00 sale. Donald Crabtree, expert stone tool maker, demonstrates making of Indian stone tools. Grades 9-12.*

Indian Cultures: From 2000 B.C. to 1500 A.D. The American Indian Series. Goldberg-Werrenrath Productions, Journal Films, 909 West Diversey, Chicago, IL 60614. 1976. *16 mm, 18 min. film. $250.00 sale. Grades 7-12.*

The Indian Experience: After 1500 A.D. The American Indian Series. Goldberg-Werrenrath Productions, Journal Films, 909 West Diversey, Chicago, IL 60614. 1976. *16 mm, 18½ min. film. $250.00 sale. Describes the effect of European contact on the American Indians. Grades 7-12.*

Indian Origins: The First 50,000 Years. The American Indian Series. Goldberg-Werrenrath Productions, Journal Films, 909 West Diversey, Chicago, IL 60614. 1975. *16 mm, 18½ min. film. $250 sale. Describes the arrival of man in North America and his early dependence on hunting big game. Grades 7-12.*

Living Archaeology. Atlantis Productions, 1252 LaGranada Drive, Thousand Oaks, CA 91360. 1977. *16 mm, 10 min. film. $165.00 sale. A group of kids take an arrowhead to an archaeologist; he tells them about it, then takes them to an excavation and puts them to work. Grades K-9.*

The Mississippian Culture of the Southeast United States. Pictures of Record, Inc., 119 Kettle Creek Road, Weston CN 06883. *Set of 85 numbered and cataloged color slides; includes teacher text. $85.00. Grades K-12.*

The Ohio Mounds (Adena and Hopewell). Pictures of Record, Inc., 119 Kettle Creek Road, Weston CN 06883. *Set of 68 numbered and cataloged color slides; includes teacher text. -$68.00. Grades K-12.*

Patterns in Human History. Anthropology Curriculum Study Project. New York, NY: MacMillan Co., 1971. *One semester course comprising four units, each with some emphasis on archaeological data, its analysis and interpretation. Kit has filmstrips, records, transparencies, readings, and lesson plans. Grades 9-12.*

Stop Destroying America's Past. McGraw-Hill Films, 110 Fifteenth Street, CA 92014. 1970. *16 mm, 23 min. color film. A plea for the preservation of archaeological sites. Filmed at Cahokia Mounds where irreparable damage has already been done. Grades 9-12.*

This Land. Shell Oil Film Library, Film Division, 1 Shell Plaza, Box 2463, Houston, Texas. 1976? *16 mm, 41 min. color film. Free loan. The story of geological and biological evolution in North America. Sets the stage for man's arrival. Grades 7-12.*

The Tribe and the Professor. University of Washington Press, Seattle, WA 98195. 1975. *16 mm, 56 min. color film. $40.00 rental, $495.00 sale. Describes the excavation of the Ozette site at Cape Alava, Washington, and how the Makah Indians living there took part. Grades 7-12.*

IV. SIMULATION GAMES

BAFA BAFA: A Cross Cultural Simulation. Simile II Corporation, 218 12th Street, P.O. Box 910, Delmar, CA 92014. 1977. *Cultural anthropology simulation exercise, designed to introduce "cultural relativism." Grades 9-12.*

Culture Contact. Games Central, ABT Associates, Inc., Cambridge, MA. 1976. *Cultural anthropology simulation exercise, also involving "cultural relativism." Takes several sessions to complete. Grades 9-12.*

Dig: A Simulation of the Archaeological Reconstruction of a Vanished Civilization. Jerry Lipetsky. Interact, Inc., Lakeside, CA. 1969. *Students invent their own culture, bury "artifacts" from that culture, and then let another group excavate the "site" and evaluate the findings. Grades 5-12.*

V. ASSOCIATIONS

The following amateur associations in west Kentucky and the surrounding states of Illinois, Indiana, Missouri, and Tennessee will respond to reasonable inquiries concerning local archaeology, guest speakers, field trips, etc.

Indianapolis Amateur Archaeological Association, Inc.
Stephen J. Lucas
759 Riverside Drive, Suite 9
Greenwood, IN 46142

Illinois Archaeological Survey
Charles Bareis
109 Davenport Hall
University of Illinois
Urbana, IL 61801

Jackson Purchase Chapter of the Kentucky Archaeological Association
Archaeology Laboratory
Department of Sociology and Anthropology
Murray State University
Murray, KY 42071

Kentucky Archaeological Association
Terry Weis Langford
1413 Newton Street
Bowling Green, KY 42101

Missouri Archaeological Society
Department of Anthropology
University of Missouri
Columbia, MO 65210

Tennessee Anthropological Association
Department of Anthropology
University of Tennessee
Knoxville, TN 37916

Tennessee Archaeological Society
Department of Anthropology
University of Tennessee
Knoxville, TN 37916

Wabash Valley Archaeological Society
Anthropology Museum
Indiana State University
Terre Haute, IN 47809

VI. SITES AND MUSEUMS OPEN TO THE PUBLIC

The following sites and museums are recommended for class field trips. All are within one day's drive of West Kentucky. Teachers are advised to consult Folsom's America's Ancient Treasures (New York: Rand McNally & Company, 1974) or regional travel guides for directions, hours, group arrangements, etc.

Angel Mounds State Memorial. Evansville, Indiana. *This Mississippian village site is still undergoing excavation. Exhibits on local prehistory are in the nearby museum; there is also an enclosed burial area. There are some reconstructions on the site.*

Ancient Buried City. Wickliffe, Kentucky. *Excavation of this Mississippian village site was not done by professional archaeologists. Numerous artifacts have been recovered and are on display.*

Blackburn Archaeological Laboratory. Indiana State University, Bloomington, Indiana. *The exhibits on North American prehistory here emphasize Indiana prehistory.*

Bynum Mounds. Near Tupelo, Mississippi. *The burial mounds here date from 700 B.C.*

Cahokia Mounds State Park. East St. Louis, Illinois. *This village site is the largest known in the United States. Monk's Mound here is the largest known mound. A small exhibit area describes the prehistory of the area and shows some of the artifacts recovered.*

Chucalissa Indian Village and Museum. Memphis, Tennessee. *Partial reconstruction of the Chucalissa Indian village is on the original site. The indoor museum describes archaeological techniques and displays some of the artifacts recovered from excavation of the site. During the summer months, visitors may view archaeologists as they continue to excavate the site.*

Cincinnati Museum of Natural History. Cincinnati, Ohio. *The exhibits on Ohio prehistory describe the settlements between 1000 B.C. and 1500 A.D.*

Cumberland Museum and Science Center. Nashville, Tennessee. *Here are exhibits on the prehistory of Tennessee.*

Dickson Mounds Museum of the Illinois Indian. Near Lewiston, Illinois. *The museum encloses a burial mound which displays the burials exactly as they were uncovered by archaeologists. Nearby is the Eveland Prehistoric Village.*

Etowah Mounds Archaeological Area. Cartersville, Georgia. *Practitioners of the Southern Cult lived at Etowah about 1350 A.D. The nearby museum describes the prehistory of the area, especially the period beginning in 1350, and archaeological techniques.*

Flint Ridge Memorial. Brownsville, Ohio. *The museum near this prehistoric flint quarry describes how man utilized flint in prehistoric times.*

Fort Hill State Memorial. Near Hillsboro, Ohio. *Hopewell people lived here from 300 B.C. to 600 A.D. There is a nearby museum.*

Graham Cave State Park. Near Danville-Montgomery City, Missouri. *Prehistoric man lived here, on and off, from 8000 B.C. to 1000 A.D.*

Illinois State Museum. Springfield, Illinois. *The museum houses exhibits on Illinois prehistory from 8000 B.C. to European contact.*

Mammoth Cave National Park. Near Bowling Green, Kentucky. *Guided tours are conducted of caves inhabited by prehistoric man from 1500 B.C. to European contact.*

McClung Museum. Knoxville, Tennessee. *Exhibits describe archaeological techniques and display artifacts recovered from the Eva site.*

Mound City Group National Monument. Chillicothe, Ohio. *The Hopewell people lived here between 300 A.D. and 600 A.D. The visitors center describes the Hopewell story.*

Museum of Science and Natural History. St. Louis, Missouri. *Exhibits show the prehistory of the area.*

Old Stone Fort State Park. Manchester, Tennessee. *The walled earthworks here date between 1 A.D. and 400 A.D.*

Pink Palace Museum. Memphis, Tennessee. *The museum houses exhibits on Tennessee prehistory.*

Russell Cave National Monument. Near Bridgeport, Alabama. *Ancient man lived in Russell Cave from 7000 B.C. to 1000 A.D. Exhibits in the museum at the entrance to the cave describe the settlements.*

Seip Mound. Bainbridge, Ohio. *This series of burial mounds dates from the Hopewell culture, between 300 B.C. and 600 A.D. The exhibit pavillion houses material recovered from the excavated site.*

Serpent Mound State Memorial. Near Peebles, Ohio. *This large effigy mound was probably built by the Adena people between 800 B.C. and 400 B.C. There is a nearby museum.*

University of Kentucky Museum of Anthropology. Lexington, Kentucky. *The museum houses exhibits on Kentucky prehistory.*

Winterville Mounds State Park. Near Greenville, Mississippi. *A large Mississippian ceremonial center was built here about 1000 A.D. There is a nearby museum.*

VII. WORKSHOPS AND FIELD SCHOOLS FOR HIGH SCHOOL STUDENTS

TVA's Land Between The Lakes sponsors an *Archaeology Weekend* each spring with the Tennessee Department of Parks and Recreation and the Jackson Purchase Chapter of the Kentucky Archaeological Association. The Weekend involves speakers, films, demonstrations, and special activities. High school students are encouraged to participate. Contact TVA's Land Between The Lakes, Section of Recreation, Interpretation, and Environmental Energy Education, Golden Pond, KY 42231.

A five-week summer archaeological *field school for high school students* is held at the Kampsville Archaeological Center in Kampsville, Illinois, by Northwestern University, the Illinois High School Districts, and the Foundation for Illinois Archaeology. The field school is open to students from any high school in the United States. There are also periodic *workshops and field schools specifically for teachers.* For more information, contact Ellen Gantner, Director of Special Programs, P.O. Box 1499, Evanston, IL 60204.

Indiana University in Bloomington, Indiana, has sponsored *field schools for high school students* in the past. For more information, contact Cheryl Munson, Glenn A. Black Laboratory of Archaeology, Bloomington, IN 47401.

School assembly programs and special classroom presentations on the Koster site, the Kampsville Archaeological Center, and current archaeological discoveries are available through the Northwestern University Archaeological Program. Contact Ellen Gantner, Director of Special Programs, Box 1499, Evanston, IL 60201.

Some field schools offered through universities will accept high school students seriously interested in an archaeological career. Contact the archaeology department at a nearby university or write the American Anthropological Association (1703 New Hampshire Avenue N.W., Washington DC 20009) for a list of field schools offered nationwide. High school students may be accepted eagerly if they volunteer as workers on professional excavations; contact a nearby university, the state archaeologist, or the nearest amateur archaeological association.